

CHECK LIST OF THE FISH AND FISH-LIKE ANIMALS OF
NEW SOUTH WALES.

Part iii

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XCIX.

Family MULLIDAE.

- A. Palate toothless; teeth of jaws in 1-2 rows *Upeneus* (213).
 AA. Vomer with, palatines with or without teeth.
 B. Palatines with teeth. *Upeneoides* (214).
 BB. Palatines toothless. *Upeneichthys* (215).

213. UPENEUS Cuvier, Reg. Anim. (2 ed.) ii., 1829, p. 157 (*bifasciatus*).

213a. U. SIGNATUS. SPOTTED RED MULLET. *Id.* Gunther, A.M.N.H. (3)
 xx, 1867, p. 59. *Mullus signatus* Ogilby, Ed. Fish. N.S.W., 1893, p. 35,
 pl. 11.

Though the young of this species are plentiful in Port Jackson, the adults are not often seen. Length 10 inches.

(A specimen recorded by Bleeker as *U. spilurus* Bleeker, from Port Jackson, Nederl. Tydschr. Dierk. ii, 1865, p. 71, is probably *U. signatus*).

214. UPENEOIDES Bleeker, Verh. Bat. Gen. xxii, 1849, p. 63 (*vittatus*).

214a. U. TRAGULA. *Upeneus tragula* Richardson, Ichth. China, 1845, p. 220.

Upeneoides tragula Day, Fish. India, 1875, p. 121, pl. 30, 4 (Pl. xxv).

Young specimens are captured by seine fishermen, but adults are rare in our waters. Length 9 inches.

215. UPENEICHTHYS Bleeker, Verh. Akad. Amsterdam ii, 1855, p. 7 (*porosus*).

215a. U. POROSUS. BLUE-STRIPED RED MULLET. *Upeneus porosus* Cuvier & Valenciennes, H. N. Poiss. iii, 1829, p. 455. *Upeneichthys porosus* Roughley, Fish. Austr., 1916, p. 139, pl. 44 (Pl. xxv).

A brilliantly coloured fish occurring around rocky headlands. Length 10 inches.

(*U. vlamingii* Cuv. & Val., has been recorded from Port Jackson by Castelnau, F.L.S. N.S.W. iii, 1879, p. 372. The record was evidently based upon a specimen of *U. porosus*).

C. Family LETHRINIDÆ.

- A. Cheeks naked. *Lethrinus* (216).
 AA. Cheeks scaly. *Pentapus* (217).

216. LETHRINUS Cuvier, Reg. Anim. (2 ed.) ii, 1829, p. 184 (*choerorhynchus*).
 A. Second dorsal spine longer than those following it, more or less produced.
nematacanthus (216a).

AA. Second dorsal spine shorter than those following it.
 B. 6 scales between first dorsal spine and lateral line. *opercularis* (216b).
 BB. 5 scales between first dorsal spine and lateral line. *chrysostomus* (216c).

216a. L. NEMATACANTHUS. *Id.* Bleeker, Verh. Bat. Gen. xxvi, 1856, p. 90,
 and Atlas Ichth. viii, 1876, p. 114, pl. 337, 3.

A tropical species occurring in southern Queensland, and once recorded from
 New South Wales waters.

216b. L. OPERCULARIS. *Id.* Cuvier & Valenciennes, H. N. Poiss. vi, 1830,
 p. 289; *Id.* Bleeker, Atlas Ichth. viii, 1876, p. 119, pl. 335, 5 (Pl. xxv.).
 Another tropical species rarely wandering southward into New South Wales.

216c. L. CHRYSOSTOMUS. ISLAND SNAPPER or YELLOW-MOUTHED SNAPPER.
Id. Richardson, Ichth. Erebus & Terror, 1848, p. 118, pl. 60, 6-7.

Occasionally captured in our northern waters, and reaching 3 feet in length.

(Castelnaud, P.L.S. N.S.W. iii, 1879, p. 372, has recorded a species from
 Port Jackson, which he doubtfully identified as *L. glyphodon* Gunther, while
 Kner, Novara Zool. i, 1865, p. 81, equally doubtfully identified a fish a *L. harak*
 Forskal, which was said to have been taken at Sydney. There is no reason to
 suppose either species occurs in New South Wales).

217. PENTAPUS Cuvier & Valenciennes, Hist. Nat. Poiss. vi, 1830, p. 258
 (*vittatus*).

217a. *P. setosus*. *Id.* Cuv. & Val., *Ibid.* p. 270. *Id.* Bleeker, Atlas
 Ichth. viii, 1876, p. 101, pl. 324, 1 (Pl. xxvi).

Another tropical fish ranging to southern Queensland, and once recorded
 from New South Wales. Length 10 inches.

CI. Family SPARIDÆ.

- A. Molars in 2 series; colour pinkish. *Pagrosomus* (218).
 AA. Molars in 3 or more series; colour olive-silver. *Sparus* (219).

218. PAGROSOMUS Gill, Mem. Acad. Sci. Wash. vi, 1893, p. 97 (*auratus*).

218a. *P. auratus*. SNAPPER. *Labrus auratus* (Forster) Bloch & Schneider.
 Syst. Ichth. 1801, p. 266. *P. auratus* Roughley, Fish. Austr., 1916, p.
 130, pl. 42 and frontispiece (Pl. xxv).

The choice fish of our market and commanding a higher price than any
 other. The young stages are popularly known as Cocknies, which develop
 through Red Bream and Squire into the adult form recognised as Snapper.
 Large examples in which the nape is elevated into a huge bony boss and the
 snout developed into a curious fleshy nose are known as Old-men Snapper;
 these attain a weight of over 30 pounds.

219. SPARUS Linn., Syst. Nat. 10th ed. i, 1758, p. 277 (*aurata*).

- A. Anal with 7-9 rays; body without longitudinal stripes. *australis* (219a).
 AA. Anal with 11 rays; body with golden longitudinal stripes. *sarba* (219b).

- 219a. S. AUSTRALIS. BLACK BREAM. *Chrysophrys australis* Gunther, B.M. Cat. Fish. i, 1859, p. 494; *Id.* McCoy, Prodr. Zool. Viet. dec. i, 1878, pl. 4 (Pl. xxv).

One of the most important of our food fishes, occurring in great quantities in the harbours and estuaries. Length 22 inches, weight 7½ pounds.

- 219b. S. SARBA. TARWHINE. *Id.* Forskal, Descr. Anim., 1775, p. 31. *Chrysophrys sarba* Stead, Ed. Fish. N.S. Wales, 1908, p. 78, pl. 47.

A northern fish, less plentiful than the preceding. Length 16 inches, weight 3½ pounds.

CII. Family KYPHOSIDAE.

220. KYPHOSUS Lacep., H. N. Poiss. iii, 1802, p. 114 (*bigibbus*).

- 220a. K. SYDNEYANUS. SILVER DRUMMER. *Pimelepterus sydneyanus* Gunther, A.M.N.H. (5) xviii, 1886, p. 368. *K. sydneyanus* McCulloch, Rec. Austr. Mus. xiii. 2, 1920, p. 56, pl. 12, 2 (Pl. xxv).

Abundant during the summer months, but not regarded as of much value as a food fish. Length 30 inches.

CIII. Family GIRELLIDAE.

A. Operculum largely naked; less than 60 scales in a longitudinal row. *Girella* (221).

AA. Operculum scaly; about 80 scales in a longitudinal row. *Melambaphes* (222).

221. GIRELLA Gray, Illustr. Ind. Zool., 1835, pl. 98 (*punctata*).

A. Outer teeth of jaws imbricate, in 2-4 rows. *tricuspidata* (221a).

AA. Outer teeth of jaws in single rows.

B. 14-16 dorsal spines; nostrils scarcely fimbriate. *cyanea* (221b).

BB. 13 dorsal spines; nostrils markedly fimbriate. *elevata* (221c).

- 221a. G. TRICUSPIDATA. BLACKFISH. *Boops tricuspidatus* Quoy & Gaimard, Voy. Uranie, 1824, p. 296. *G. tricuspidata* McCulloch, Rec. Austr. Mus. xiii. 2, 1920, p. 60, pl. 14, 1 (Pl. xxv).

One of the commonest fishes in the markets, being captured by net fishermen in inlets throughout the year, while it is also taken by line along the coast. Length 20 inches, weight 6 pounds.

- 221b. G. CYANEA. BLUEFISH. *Id.* Macleay, P.L.S. N.S.W. v, 1881, p. 409. *Id.* Waite, Rec. Austr. Mus. v. 3, 1904, p. 167, pl. 20, 3.

Not common on this coast but plentiful at Lord Howe Island, where it is regarded as a fine table fish. Length about 2 feet.

- 221c. G. ELEVATA. BLACK DRUMMER. *Id.* Macleay, P.L.S.N.S.W., v, 1881, p. 408; *Id.* McCulloch, Rec. Austr. Mus. xiii. 2, 1920, p. 64, pl. 13, 1.

Lives among weed-covered rocks along the coast, and occasionally congregates in schools. Length about 2 feet.

(*G. zonata* Gunther, has been included in a list of Port Jackson fishes by Castelnau, P.L.S.N.S.W. iii, 1879, p. 350, but the species has not since been recognised from New South Wales).

222. MELAMBAPHES Gunther. A.M.N.H. (3) vi, 1863, p. 115 (*nigroris* Gthr. not of Cuv. & Val.).

- 222a. *M. ZEBRA*. *Crenidens zebra* Richardson, Ichth. Erebus & Terror, 1846, p. 70. *Girella zebra* Steindachner, Sitzb. Akad. Wiss. Wien. liii, 1866, p. 430, pl. 6, 2 (Pl. xxv).

The specimen described and figured by Steindachner was said to have been taken in Port Jackson, but no other appears to have been recognised from New South Wales.

CIV. Family PEMPHERIDAE.

- A. Scales of the body ctenoid. *Pemppheris* (223).
AA. Scales of the body cycloid. *Liopemppheris* (224).

223. PEMPHERIS Cuvier, Reg. Anim. 2nd ed. ii, 1829, p. 195 (*touca* = *compressa*).

- 223a. *P. COMPRESSA*. BULLSEYE. *Sparus compressus* Shaw, White's Voy. N.S. Wales, 1790, p. 267, pl. 12. *P. compressus* Stead, Ed. Fish. N.S. Wales, 1908, p. 49, pl. 18 (Pl. xxvi).

A small species covered with rough scales. Length about 8 inches.

224. LIOPEMPHERIS Ogilby, Mem. Qld. Mus. ii, 1913, p. 62 (*multiradiata*).

- A. 46-50 scales on lateral line to hypural joint. *multiradiata* (224a).
AA. About 60 scales on lateral line to hypural joint. *affinis* (224b).

- 224a. *L. MULTIRADIATA*. BIG-SCALED BULLSEYE. *Pemppheris multiradiatus* Klunzinger, Sitzb. Akad. Wiss. Wien. lxxx. i, 1879, p. 381. *P. macrolepis* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 73, pl. 10.

Occurs in water of moderate depths where it is captured by the trawlers. Length about 8 inches.

- 224b. *L. AFFINIS*. *Pemppheris affinis* McCulloch, Zool. Res. Endeavour i. 1, 1911, p. 45, pl. 7, 1 (Pl. xxvi).

A rare species less than 6 inches long.

CV. Family MONODACTYLIDAE.

- A. 8 dorsal spines, scales finely ctenoid. *Monodactylus* (225).
AA. 5 dorsal spines; scales cycloid. *Schuettea* (226).

225. MONODACTYLUS Lacep., H. N. Poiss. iii, 1802, p. 131 (*falciformis*).

- 225a. *M. ARGENTUS*. SILVER BATFISH. *Chaetodon argenteus* Linn., Syst. Nat. 10th ed. i, 1758, p. 272. *Psettus argenteus* Richardson, Ichth. Erebus & Terror, 1846, p. 57, pl. 35, 1-3 (Pl. xxvi).

A widely distributed tropical fish which ranges southward to Sydney. Length 8 inches.

226. SCHUETTEA Steindachner, Sitzb. Akad. Wiss. Wien. liii. 1, 1866, p. 449 (*scalaripinnis*).

- 226a. *S. SCALARIPINNIS*. *Id.* Steindachner, *Ibid.*, pl. 6, *Id.* McCulloch, Zool. Res. Endeavour i. 1, 1911, p. 81, pl. 15 (Pl. xxvi).

Occasionally captured in nets on the coast near Sydney. Length 8 inches.

CVI. Family SCORPIDIDAE.

- A. Dorsal spines increasing in height backwards, lower than the anterior rays. *Scorpis* (227).
AA. Median dorsal spines longest, higher than the rays. *Atypichthys* (228).

227. SCORPIS Cuv. & Val., H. N. Poiss. viii, 1831, p. 503 (*georgianus*).
 A. Anal rays equal to, or more numerous than those of dorsal. *lineolatus* (227a).
 AA. Anal rays less numerous than those of dorsal. *violaceus* (227b).
 227a. S. LINEOLATUS. SWEEP. *Id.* Kner, Novara Zool. i, Fische pt. 1,
 1865, p. 108, pl. 5, 3 (Pl. xxvi).
 Young specimens are very plentiful in inlets, while adults are more commonly
 captured along the coast. Length 12 inches.
 227b. S. VIOLACEUS. HARD-BELLY. *Ditrema violacea* Hutton, Trans. N.Z.
 Inst. v, 1873, p. 261, pl. 8, 31b.
 Abundant at Lord Howe Island, and once recorded from near Sydney. The
 record needs verification. Length 9 inches.
 228. ATYPICHTHYS Gunther, B.M. Cat. Fish. iv, 1862, p. 510 (*strigatus*).
 228a. A. STRIGATUS. MADO. *Atypus strigatus* Gunther, B.M. Cat. Fish.
 ii, 1860, p. 64. *Id.* Steindachner, Sitzb. Akad. Wiss. Wien liii, 1866,
 p. 435, pl. 4, 2 (Pl. xxvi).
 Plentiful in inlets along the coast. Length 10 inches.

CVII.

Family SCATOPHAGIDAE.

229. SCATOPHAGUS Cuvier & Valenciennes, H. N. Poiss. vii, p. 136 (*argus*).
 A. Margins of dorsal and anal fins subvertical; sides spotted above and below.
argus (229a).
 AA. Margins of dorsal and anal fins extending obliquely forward; sides striped
 above, spotted below. *multifasciatus* (229b).
 229a. S. ARGUS. SPOTTED BUTTERFISH. *Chaetodon argus* Linne, Syst. Nat.
 12th ed., 1766, p. 464. *S. argus* Day, Fish. India, 1875, p. 114, pl.
 29, 3.
 A tropical species, rare in our waters. Length 12 inches.
 229b. S. MULTIFASCIATUS. BUTTERFISH. *Id.* Richardson, Ichth. Erebus
 & Terror, 1846, p. 57, pl. 35, 4-6 (Pl. xxvi).
 Plentiful in estuaries of the northern rivers. Length 16 inches.

CVIII.

Family PLATACIDAE.

230. PLATAX Cuvier, R. Anim. ii, 1817, p. 334 (*teira*).
 230a. P. TEIRA. BAT FISH. *Chaetodon teira* Forskal, Deser. Anim., 1775,
 p. 60; *Id.* Bleeker, Atlas Ichth. ix, 1877-8, p. 73, pls. 279, 2 and 382,
 1 (Pl. xxvii).
 Another tropical species wandering southward into our northern waters.
 Length 20 inches.

CIX.

Family CHAETODONTIDAE.

- A. Dorsal spines not increasing in height backward.
 B. Snout produced into a slender beak; 9 dorsal spines. *Chelmon* (231).
 BB. Snout shorter, not beak-like; more than 9 dorsal spines.
 C. Fourth dorsal spine greatly produced and filiform. *Heniochus* (232).
 CC. No elongate spine, the margin of the spines rounded.
 D. Scales minute, more than 70. *Vinculum* (233).
 DD. Scales larger, 35-60.
 E. Second anal spine longer than third. *Microcanthus* (234).
 EE. Second anal spine not longer than third. *Chaetodon* (235).
 AA. Dorsal spines increasing in height backward.
 F. Eleven dorsal spines. *Chelmonops* (236).
 FF. Six to seven dorsal spines. *Parachaetodon* (237).

231. CHELMON Cuvier, R. Anim. ii, 1817, p. 334 (*rostratus*).
- 231a. C. ROSTRATUS. BEAKED CORAL-FISH. *Chaetodon rostratus* Linne, Syst. Nat. 10th ed., 1758, p. 273. *Chelmo rostratus* Day, Fish. India, 1875, p. 110, pl. 28, 2 (Pl. xxvii).
- Frequents coral regions. A single specimen is in the Australian Museum from Iluka, Clarence River. Length about 5 inches.
232. HENIOCHUS Cuvier, R. Anim. ii, 1817, p. 335 (*macrolepidotus*).
- 232a. H. ACUMINATUS. PENNANT CORAL-FISH. *Chaetodon acuminatus* Linne, Syst. Nat. 10th ed., 1758, p. 272. *H. macrolepidotus* Day, Fish. India, 1875, p. 110, pl. 28, 3 (Pl. xxvii).
- Another species of coral regions, occasionally reaching the northern waters of the State. Length 18 inches.
233. VINCULUM McCulloch, Biol. Res. Endeavour ii. 3, 1914, p. 110 (*sexfasciatum*).
- 233a. V. SEXFASCIATUM. *Chaetodon sexfasciatus* Richardson, A.M.N.H. x, 1842, p. 26. *V. sexfasciatum* McCulloch, Biol. Res. Endeavour ii. 3, 1914, p. 110, pl. 22 (Pl. xxvii).
- A southern fish, unreliably recorded from New South Wales. Length 10 inches.
234. MICROCANTHUS Swainson, Nat. Hist. Fish. Amphib. Rept. ii, 1839, p. 215 (*strigatus*).
- 234a. M. STRIGATUS. STRIPEY. *Chaetodon strigatus* Cuv. & Val., H. N. Poiss. vii, 1831, p. 25, pl. 170 (Pl. xxvii).
- Plentiful in estuaries along the coast. Length about 6 inches.
235. CHAETODON Linne, Syst. Nat. 10th ed., 1758, p. 272 (*capistratus*).
- A. A blackish band extends around bases of dorsal and anal fins, crossing the peduncle; body dark. *flavivostriis* (235a).
- AA. No such dark band; body light.
- B. A dark ocellus on the dorsal fin; one dorsal ray produced. *setifer* (235b).
- BB. No ocellus on the dorsal fin and no produced ray. *citrinellus* (235c).
- 235a. C. FLAVIROSTRIS. CORAL-FISH. *Id.* Gunther, Fische Sudsee i, 1874, p. 41, pl. 32, a.
- A specimen 6 inches long, forwarded by the Department of Fisheries to the Australian Museum, is the first of the species to be recognised from New South Wales: It is from Iluka, Clarence River.
- 235b. C. SETIFER. HAIR-FINNED CORAL-FISH. *Id.* Bloch, Ausl. Fische ix, 1795, p. 101, pl. 426, 1.
- A widely distributed and ornate species which occasionally wanders southward into our northeru waters. A specimen is in the Australian Museum from Iluka, Clarence River. Length 7 inches.
- 235c. C. CITRINELLUS. CORAL-FISH. *Id.* Cuv. & Val., H. N. Poiss. vii, 1831, p. 27; *Id.* Valenciennes, R. Anim. Illustr. Poiss., 1843, pl. 39, 1 (Pl. xxvii).
- A small tropical species occasionally extending into our waters.
236. CHELMONOPS Bleeker, Arch. Neerl. Sc. Nat. xi, 1876, p. 304 (*truncatus*).
- 236a. C. TRUNCATUS. *Chaetodon truncatus* Kner, Sitzb. Akad. Wiss. Wien. xxxiv, 1859, p. 442, pl. 2 (Pl. xxvii).
- A fairly common species, attaining a length of 8 inches.

237. PARACHAETODON Bleeker, Versl. Akad. Amsterdam (2) viii, 1874, p. 371 (*oligacanthus*).
- 237a. P. OCELLATUS. *Platax ocellatus* Cuv. & Val., H. N. Poiss. vii, 1831, p. 229. *Parachaetodon ocellatus* Bleeker, Atlas Ichth. ix, 1877, p. 24, pl. 377, 4 (Pl. xxvii).
- An occasional wanderer into New South Wales waters.

CX. Family ENOPLIDAE.

238. ENOPLUS Lacep., H. N. Poiss. iv, 1802, p. 540 (*armatus*).
- 238a. E. ARMATUS. OLD WIFE. *Chaetodon armatus* Shaw, White's Voy. N.S. Wales, 1790, p. 284, pl. —, 1. *Enoplos armatus* Stead, Ed. Fish. N.S. Wales, 1908, p. 62, pl. 32 (Pl. xxviii).
- A very common fish in harbours and estuaries. Length about 9 inches.

CXI. Family HISTIOPTERIDAE.

- A. Base of spinous dorsal shorter than that of the soft portion.
 B. Posterior dorsal spines not longer than the median ones; 2 anal spines. *Paristiopterus* (239).
- BB. Posterior dorsal spines longest; 3 anal spines. *Zanclistius* (340).
- AA. Base of spinous dorsal longer than that of the soft portion. *Pentaceroptis* (241).
239. FARISTIOPTERUS Bleeker, Arch. Neerl. Sci. Nat. xi, 1876, p. 268 (*in-signis*).
- 239a. P. LABIOSUS. GIANT BOAR-FISH. *Histiopterus labiosus* Gunther. P.Z.S. 1871, p. 658, pl. 59. *H. farnelli* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 116, pl. 27 (Pl. xxviii).
- A fine edible fish, reaching a length of 2 feet.
240. ZANCLISTIUS Jordan, P.U.S. Nat. Mus. xxxii, 1907, p. 236 (*elevatus*).
- 240a. Z. ELEVATUS. SPOTTED BOAR-FISH. *Histiopterus elevatus* Ramsay & Ogilby, P.L.S. N.S.W. (2) iii, 1888, p. 1311: *Id.* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 114, pl. 26 (Pl. xxviii).
- A common species in deep water, where it is taken by the trawlers. Length 12 inches.
241. PENTACEROPSIS Steindachner, Denk. Akad. Wiss. Wien xlvi, 1863, p. 13 (*recurvirostris*).
- 241a. P. RECURVIROSTRIS. LONG-SNOURED BOAR-FISH. *Histiopterus recurvirostris* Richardson, Ichth. Erebus & Terror, 1845, p. 34. *Prosoplismus recurvirostris* Waite, Rec. Austr. Mus. v, 1903, p. 58, pl. 6 (Pl. xxviii).
- A southern species, growing to about 20 inches long.

CXII. Family CEPOLIDAE.

242. CEPOLA Linne, Syst. Nat. 12th ed., 1766, p. 445 (*taenia*).
- 242a. C. AUSTRALIS. BAND-FISH. *Id.* Ogilby, P.L.S. N.S.W. xxiv, 1899, p. 185: *Id.* McCulloch, Biol. Res. Endeavour ii. 3, 1914, p. 109, pl. 34, 1 (Pl. xxviii).
- A rare species, pink in colour, and growing to 10 inches long.

CIRRHITIFORMES.

Percoid fishes which usually have some of the lower pectoral rays simple and thickened.

- A. 10 dorsal spines. Fam. *Cirrhitidae* (exiii).
 AA. 14-22 dorsal spines.
 B. Teeth compressed, tricuspid or lanceolate. Fam. *Aplodactylidae* (exiv).
 BB. Teeth conical, acute.
 C. Scales small, about 100; 36 or more dorsal rays. Fam. *Latrididae* (exvii).
 CC. Scales larger; less than 36 dorsal rays.
 D. Vomer toothless. Fam. *Cheilodactylidae* (exvi).
 DD. Vomer with teeth. Fam. *Chironemidae* (exv).

CXIII. Family CIRRHITIDAE.

243. CIRRHITICHTHYS Bleeker, Nat. Tijds. Nederl. Ind. x, 1856, p. 474 (*graphidopterus*).

243a. C. APRINUS. *Cirrhites aprinus* Cuv. & Val., H. N. Poiss. iii, 1829, p. 76. *Cirrhitichthys aprinus* Bleeker, Atlas. Ichth. viii, 1877, p. 146, pl. 303, 1 (Pl. xxix).

A single specimen taken in Port Jackson was only a straggler from the tropics. Length 5 inches.

CXIV. Family APLODACTYLIDAE.

244. CRINODUS Gill, P. Acad. N. Sci. Philad. 1862, p. 110 (*lophodon*).

244a. C. LOPHODON. ROCK CALE. *Haplodactylus lophodon* Gunther, B.M. Cat. Fish. i, 1859, p. 435. *H. obseurus* Castelnau, P.L.S. N.S.W. iii, 1879, p. 374.

Plentiful around rocky reefs in deep water. Length 18 inches.

CXV. Family CHIRONEMIDAE.

245. CHIRONEMUS Cuv. & Val., H. N. Poiss. iii, 1829, p. 78 (*georgianus*).

245a. C. MARMORATUS. KELP FISH. *Id.* Gunther, B.M. Cat. Fish. ii, 1860, p. 76; *Id.* Ogilby, Ed. Fish. N.S. Wales, 1893, p. 54, pl. 17 (Pl. xxix).

Plentiful among weed covered rocks along the coast. Length 14 inches.

CXVI. Family CHEILODACTYLIDAE.

A. Anal fin almost oblong, with 12 or more rays. *Dactylopagrus* (246).

AA. Anal fin with less than 12 rays, the anterior much higher than the posterior.

B. Cheeks naked. *Dactylophora* (247).

BB. Cheeks scaly. *Cheilodactylus* (248).

246. DACTYLOPAGRUS Gill, P. Ac. N. Sci. Philad. 1862, p. 114 (*carponemus*).

A. A dark nuchal band from the back to the shoulder. *macropterus* (246a).

AA. No such dark band. *morwong* (246b).

246a. D. MACROPTERUS. JACKASS-FISH. *Cichla macroptera* Bloch & Schneider, Syst. Ichth., 1801, p. 342. *Dactylosparus macropterus* McCulloch, Biol. Res. Endeavour i. 1, 1911, p. 66, pl. 12 (Pl. xxix).

A southern fish, abundant in deep water. Length 2 feet.

246b. D. MORWONG. MORWONG. *Chilodactylus morwong* Ramsay & Ogilby, P.L.S. N.S.W. (2) i, 1886, p. 879. *C. carponemus* Ogilby, Ed. Fish. N.S.W., 1893, p. 55, pl. 18—not *C. carponemus* Cuv. & Val.

Commonly confused with the preceding species. Length about 2 feet.

247. DACTYLOPHORA De Vis, P.L.S. N.S.W. viii, 1883, p. 284 (*semimaculata*).
- 247a. D. NIGRICANS. DUSKY MORWONG. *Chilodactylus nigricans* Richardson, P.Z.S. 1850, p. 63. *C. nebulosus* Steindachner, Sitzb. Akad. Wiss. Wien lxxxviii. 1, 1884, p. 1078, pl. 2.1 (Pl. xxix).
A southern fish, growing to about 2 feet long.
248. CHEILODACTYLUS Lacep., H. N. Poiss. v, 1803, p. 5 (*fasciatus*).
- A. Margin of spinous dorsal evenly convex. subg. *Cheilodactylus*.
B. 31-33 dorsal rays; body nearly uniform. *fuscus* (248a).
BB. 26-27 dorsal rays; body with brown cross bands. *spectabilis* (248b).
AA. Spinous dorsal elevated in front. subg. *Goniistius*.
C. Body white, with oblique blackish bands. *gibbosus* (248c).
- 248a. C. FUSCUS. RED MORWONG. *Id.* Castelnau, P.L.S. N.S.W. iii, 1879, p. 376; *Id.* Roughley, Fish. Austr., 1916, p. 125, pl. 40 (Pl. xxix).
A fine food fish, common around sunken reefs. Length 15 inches.
- 248b. C. SPECTABILIS. BROWN-BANDED MORWONG. *Id.* Hutton, Fish. N. Zealand, 1872, p. 8, and T. N. Zeal. Inst. v, 1873, p. 259, pl. 7, 11.
A southern fish, not common in New South Wales. Length about 2 feet.
- 248c. C. GONIISTIUS GIBBOSUS. MAGPIE MORWONG. *Chilodactylus gibbosus* Richardson, P.Z.S. 1841, p. 21. *Goniistius gibbosus* Stead, Ed. Fish. N.S. Wales, 1908, p. 72, pl. 41 (Pl. xxix).
Not uncommon in inlets along the coast, but not often captured by line fishermen. Length 12 inches.

CXVII.

Family LATRIDIDAE.

- A. Vomer with teeth; median pectoral rays longest. *Latris* (249).
AA. Vomer toothless; upper pectoral rays longest. *Latridopsis* (250).
249. LATRIS Richardson, P.Z.S. 1839, p. 99 (*hecateia*).
- 249a. L. LINEATA. TASMANIAN TRUMPETER. *Cichla lineata* Bloch & Schneider, Syst. Ichth., 1801, p. 342. *Latris hecateia* Richardson, Tr. Zool. Soc. iii, 1842, p. 106, pl. 6, 1 (Pl. xxix).
Said to occur in the southern waters of New South Wales, but not reliably recorded. Length about 40 inches.
250. LATRIDOPSIS Gill, P. Acad. N. Sci. Philad. 1862, p. 114 (*ciliaris*).
- 250a. L. FORSTERI. BASTARD TRUMPETER. *Latris forsteri* Castelnau, P. Zool. Soc. Viet. i, 1872, p. 77. *Latridopsis forsteri* McCulloch, Biol. Res. Endeavour iii. 3, 1915, p. 146, pl. 27 (Pl. xxix).
A southern fish, occurring in deeper water in New South Wales. Length about 2 feet.

POMACENTRIFORMES.

CXVIII.

Family POMACENTRIDAE.

Small ornate fishes, plentiful in tropical waters, which have but a single nostril on each side of the snout. The lower pharyngeals are ankylosed to form a single bone.

- A. Teeth usually compressed, sometimes subcylindrical.
 B. Posterior edge of preoperculum serrated.
 C. Spinous dorsal fin scaly like the soft portion. *Fomacentrus* (251).
 CC. Spinous dorsal fin naked. *Daya* (252).
 BB. Posterior edge of preoperculum smooth.
 D. 30 or less scales in a longitudinal row. *Glyphisodon* (253).
 DD. More than 30 scales in a longitudinal row. *Farma* (254).
 AA. Teeth conical. *Chromis* (255).

251. POMACENTRUS Lacep., H. N. Poiss. iv, 1803, p. 505 (*pavo*).

251a. *P. UNIFASCIATUS*. *Id.* Steindachner, Sitzb. Akad. Wiss. Wien. lvi. 1, 1867, p. 326.

A little known species which has not been recognised since first described. Length $7\frac{1}{2}$ inches.

252. DAYA Bleeker, Verh. Holl. Mij. Haarlem, 1877, p. 71 (*jerdoni*).

252a. *D. JERDONI*. *Pomacentrus jerdoni* Day, F.Z.S. 1873, p. 237, and Fish. India, 1877, p. 383, pl. 80, 7. *P. dolii* Macleay, P.L.S. N.S.W. vi, 1881, p. 65, pl. i, l.

The types of *P. dolii* in the Macleay Museum, prove to be similar in all details to specimens from Queensland which I identify as *D. jerdoni*. They were doubtless stragglers from the northern waters. Length $4\frac{1}{2}$ inches.

253. GLYPHISODON Lacep., H. N. Poiss. iv, 1803, p. 542 (*moucharra*).

- A. Teeth strongly compressed; colouration not uniform.
 B. Body light, with 5 darker cross bands. *saxatilis* (253a).
 BB. Body dark, with 1 light cross band; a dark ocellus on the dorsal fin. *leucozona* (253b).
 AA. Teeth subcylindrical; body uniformly coloured. *immaculatus* (253c).

253a. *G. SAXATILIS*. BANDED DEMOISELLE. *Chaetodon saxatilis* Linne, Syst. Nat. 10th ed., 1758, p. 276. *Glyphidodon coelestinus* Bleeker, Atlas Ichth. ix, 1877, pl. 408, 5 (Pl. xxviii).

A common tropical species, which sometimes extends southward to Sydney. Length 6 inches.

253b. *G. LEUCOZONA*. *Id.* Bleeker, Nat. Tijd. Ned. Ind. xix, 1859, p. 338, and Atlas Ichth. ix, 1877, pl. 407, 2.

A small species, only once taken near Sydney.

253c. *G. IMMACULATUS*. BLUE PULLER. *Heliastes immaculatus* Ogilby, F.L.S. N.S.W. x, 1886, p. 446; *Id.* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 86, pl. 14 (Pl. xxviii).

This species is apparently better associated with the genus *Glyphisodon* than with *Heliastes*, though its teeth are less compressed than is usual in the former genus. Length 6 inches.

(Two small specimens recorded as *G. unioellatus* Quoy & Gaimard, from Sydney, by Steindachner, Sitzb. Akad. Wiss. Wien. lvi. 1, 1867, p. 323, were doubtless incorrectly identified).

254. FARMA Gunther, Brit. Mus. Cat. Fish. iv, 1862, p. 57 (*microlepis*).

254a. *P. MICROLEPIS*. WHITE-EAR. *Id.* Gunther, *Loc. cit.*, p. 58. *Hypsypops microlepis* Waite, Rec. Austr. Mus. vi. 2, 1905, p. 67, pl. 12, 1-3 (Pl. xxviii).

Common among rocks. The young are orange with broad blue bands above, but the adults are black with a white patch on the gill-covers. Length 7 inches.

255. CHROMIS Cuvier, Mem. Mus. Hist. Nat. Paris i, 1815, p. 353 (*chromis*).
 255a. C. HYPSSILEPIS. BROWN PULLER. *Heliastes hypsilepis* Gunther.
 A.M.N.H. (3) xx, 1867, p. 66. *Chromis hypsilepis* McCulloch, Zool.
 Res. Endeavour i. l, 1911, p. 73, pl. 14 (Pl. xxviii).
 Not uncommon around rocky places on the coast. Length $7\frac{1}{2}$ inches.

DIVISION LABRIFORMES. PARROT-FISHES.

Percoid fishes, usually brilliantly coloured, and characterised by having the lower pharyngeals ankylosed to form a single bone; two nostrils are present on each side of the snout.

- A. Anterior teeth of jaws separate, lateral teeth usually separate from one another. Fam. *Labridae* (cxix).
 AA. Teeth of jaws coalesced to form sharp edged plates.
 B. Dorsal fin with 15-24 spines, ventrals with 4 rays. Fam. *Neodacidae* (cxx).
 BB. Dorsal fin with 9 spines, ventrals with 5 rays. Fam. *Scaridae*.

CXIX. Family LABRIDAE.

- A. Lateral teeth of jaws free, not confluent.
 B. 8-9 dorsal spines.
 C. Operculum scaly.
 D. 11 dorsal rays.
 E. Margin of spinous dorsal with free points behind each spine
Pseudolabrus (256).
 EE. Margin of spinous dorsal without such free points.
Pictilabrus (257).
Eupetrichthys (258).
 DD. 12 dorsal rays.
 CC. Operculum naked.
 F. Lateral line interrupted; forehead elevated and sharp edged.
Novaculichthys (259).
 FF. Lateral line continuous; forehead not elevated or sharp edged.
 G. Scales larger, less than 40 in a longitudinal row.
 H. 9 dorsal spines. *Halichoeres* (260).
 HH. 8 dorsal spines. *Thalassoma* (261).
 GG. Scales smaller, more than 40 in a longitudinal row.
 I. A few small scales behind eye; lateral line less than 60.
Ophthalmolepis (262).
 II. No scales behind eye; lateral line more than 60. *Coris* (263).
 AA. Some of the lateral teeth united to form a bony ridge on each side.
 J. 13 dorsal spines. *Choerodon* (264).
 JJ. 11-12 dorsal spines.
 K. 45 or more scales on the lateral line. *Achoerodus* (265).
 KK. 37 or less scales on the lateral line.
 L. Whole upper lip exposed when mouth is closed; snout obtuse.
Lepidaplois (266).
 LL. Upper lip hidden posteriorly beneath preorbital when mouth is closed; snout slender. *Verreo* (267).
 256. PSEUDOLABRUS Bleeker, P. Zool. Soc. 1861 (1862), p. 415 (*rubiginosus*).
 A. Cheek-scales in 4 or more rows, extending forward to below middle of eye.
 B. Dorsal and anal fins with large scales covering their bases.
 C. Broad bands from the snout and interorbital space passing through the eye onto the body.
guntheri (256a).
 CC. Only narrow bands radiating from the eye, sometimes wanting.
luculentus (256b).
 BB. Dorsal and anal fins without scaly bases.
celidotus (256c).
 AA. Cheek-scales in 1-3 rows, rarely 4 rows, usually confined to postorbital portion of head.
 D. Cheek-scales in 1 row above, usually 3 below. *tetricus* (256d).
 DD. Cheek-scales in 1 row. *gymnogenis* (256e).

- 256a. P. GUNTHERI. *Id.* Bleeker, Versl. Akad. Amsterdam xiv, 1862, p. 130; *Id.* McCulloch, Rec. Austr. Mus. ix. 3, 1913, p. 368, pl. 17 (Pl. xxx).
An uncommon species, most plentiful towards the northern border of the State. Length about 7 inches.
- 256b. P. LUCULENTUS. *Labrus luculentus* Richardson, Ichth. Erebus & Terror, 1848, p. 130. *P. luculentus* Waite, Rec. Austr. Mus. v. 1, 1903, p. 29, pl. 4, 1.
Occasionally captured in New South Wales, but more plentiful at Lord Howe Island. Length about 8 inches.
- 256c. P. CELIDOTUS. *Labrus celidotus* Bloch & Schneider, Syst. Ichth., 1801, p. 133; *Id.* Richardson, Ichth. Erebus & Terror, 1846, p. 53, pl. 31, 1-5.
This species has been recorded from New South Wales, but proof of its occurrence here is required.
- 256d. P. TETRICUS. LILAC-BANDED PARROT-FISH. *Labrus tetricus* Richardson, P. Zool. Soc. 1840, p. 25. *Pseudolabrus tetricus* McCulloch, Rec. Austr. Mus. ix. 3, 1913, p. 377, pl. 19. *P. cyanogenys* McCulloch, Zool. Res. Endeavour i. l. 1911, p. 76, pl. 13 (Pl. xxx).
An exceedingly variable species, altering greatly in both form and colour in changing from the young to the adult. Length about 18 inches.
- 256e. P. GYMNOGENIS. WHITE-SPOTTED PARROT-FISH. *Labrichthys gymnogenis* Gunther, Brit. Mus. Cat. Fish. iv., 1862, p. 117. *Pseudolabrus gymnogenis* McCulloch, Rec. Austr. Mus. ix. 3, 1913, p. 381, pl. 20.
Another species which undergoes great changes with growth. The adult form is known as the Crimson-banded Parrot-fish. Length 12 inches.
(*Labrus cyprinaceus* Shaw, White's Voy. N.S. Wales, 1790, p. 264, pl. 1, is apparently a species of *Pseudolabrus*, but is too briefly characterised to be identified).
257. PICTILABRUS Gill, Proc. U.S. Nat. Mus. xiv., p. 403 (*laticlavius*).
- 257a. P. LATICLAVIUS. GREEN-BANDED PARROT-FISH. *Labrus laticlavius* Richardson, F. Zool. Soc. 1839, p. 99, and Ichth. Erebus & Terror, 1848, p. 128, pl. 56, 3-6 (Pl. xxx).
Common among weed covered rocks, and characterised by its green colour with two purple longitudinal stripes on the sides. Length about 8 inches.
258. EUPETRICHTHYS Ramsay & Ogilby, P.L.S. N.S.W. (2) ii, 1888, p. 631 (*angustipes*).
- 258a. E. ANGUSTIPES. SLENDER PARROT-FISH. *Id.* Ramsay & Ogilby, *Tom. cit.*, p. 632; *Id.* McCulloch, Rec. Austr. Mus. ix. 3, 1913, p. 365, pl. 15, (Pl. xxx).
A rare species, known only from three specimens from near Sydney. Length 6 inches.
259. NOVACULICHTHYS Bleeker, Proc. Zool. Soc. 1861 (1862), p. 414 (*taeniurus*).
- 259a. N. JACKSONENSIS. KEEL-HEADED PARROT-FISH. *Novacula jacksonensis* Ramsay, P.L.S. N.S.W. vi, 1881, p. 198. *Novaculichthys jacksonensis* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 87, pl. 15 (Pl. xxx).
A rare species, about 8 inches long.
260. HALICHOERES Ruppell, Neue Wirbelth. Fische, 1837, pp. 10, 17 (*bimaculatus*).

H. poecilus Richardson, *H. centiquadrus* Lacepede, and *H. trimaculatus* Quoy and Gaimard, have been recorded from Port Jackson, the first by Steindachner, Sitzb. Akad. Wiss. Wien liii, 1866, p. 463, the second by Waite, Rec. Austr. Mus. iv, 1901, p. 54, and the third by Kner, Novara Zool. i, Fische, 1865, p. 255. All are tropical fishes, and further proof of their occurrence on the coast of New South Wales is needed.

261. THALASSOMA Swainson, Nat. Hist. Fish. Amphib. Rept. ii, 1839, p. 224 (*purpurea*).
- 261a. T. LUNARIS *Labrus lunaris* Linne, Syst. Nat. 10th ed., 1758, p. 283.
Julis lunaris Bleeker, Atlas Ichth. i, 1862, p. 90, pl. 33, 5.
Another tropical species, of which the only record from Port Jackson is quite unreliable.
262. OPTHALMOLEPIS Bleeker, F. Zool. Soc. 1861 (1862), p. 413 (*lineolatus*).
- 262a. O. LINEOLATUS. MAORI. *Julis lineolatus* Cuv. & Val., H. N. Poiss. xiii, 1839, p. 436. *O. lineolatus* Kner, Novara Zool. i, Fische, 1865, p. 258, pl. 11, 1 (Pl. xxx).
A common fish in the vicinity of sunken reefs. Length 16 inches.
263. CORIS Lacep., H. N. Poiss. iii, 1802, p. 96 (*aygula*).
- A. A black comb-like band from snout to tail. *picta* (263a).
AA. Two dark transverse bands on anterior part of body. *sandeyeri* (263b).
- 263a. C. PICTA. *Labrus pictus* Bloch & Schneider, Syst. Ichth., 1801, p. 251, pl. 55. *C. picta* Waite, Rec. Austr. Mus. v, 1903, p. 26, pl. 5, 1 (Pl. xxx.).
Not uncommon around wharf-piles in harbours, and plentiful on the reef at Lord Howe Island. Length 9 inches.
- 263b. C. SANDEYERI. KING PARROT-FISH. *Cymolutes sandeyeri* Hector, Trans. N. Zeal. Inst. xvi., 1884, p. 323. *C. rex* McCulloch, Rec. Austr. Mus. xiii, 2, 1920, p. 67, pl. 14, 2.
A rare species, reaching a length of 26 inches.
264. CHOERODON Bleeker, Nat. Geneesk. Arch. Nederl. Indie iv, 1847, p. 10 (*macrodontus*).
- 264a. C. VENUSTUS. BLUE-SPOTTED GROPER. *Choerops venustus* De Vis, Proc. Roy. Soc. Qld. i, 1885, p. 147. *Choerodon ommopterus* Roughley, Fish. Austr. 1916, p. 150, pl. 50 (Pl. xxx.).
A northern species, forwarded to Sydney from the Clarence and Richmond River estuaries. Length nearly 3 feet.
- 264b. C. MACLEAYI. *Choerops macleayi* Ramsay & Ogilby, P.L.S. N.S.W. (2) ii., 1887, p. 241.
Known only from a single example 5½ inches long, which is perhaps merely the young of *C. venustus*.
265. ACHOERODUS Gill, P. Acad. N. Sci. Philad. 1863, p. 222 (*gouldii*).
- 265a. A. GOULDII. BLUE GROPER. *Labrus gouldii* Richardson, A.M.N.H. xi, 1843, p. 353. *Platychoerops mulleri* Klunzinger, Sitzb. Akad. Wiss. Wien lxxx. i, 1879, p. 399, pl. 8, 2 (Pl. xxx.).
A valuable food-fish occurring around rocky coasts, and reaching a length of about 3½ feet.

The name *Trochocopus unicolor* Gunther, A.M.N.H. (4) xvii, 1876, p. 398, was based upon a stuffed skin from Port Jackson, which is probably not distinct from the Blue Groper.

Heterochoerops viridis Steindachner, Sitzb. Akad. Wiss. Wien liii, 1866, p. 461, pl. 5, 3, is evidently the very young form of *Achoerodus*, in which the preopercular margin is strongly serrated, and the tubes of the lateral line are simple instead of arborescent.

265b. A. BADIUS. BROWN GROPER. *Platychoerops badius* Ogilby, Ed. Fish. N.S. Wales, 1893, p. 134.

This is probably only a colour variation of the preceding species.

266. LEPIDAPLOIS Gill, P. Acad. N. Sci. Philad. 1862, p. 140 (*axillaris*).

266a. L. VULPINUS. *Cossyphus vulpinus* Richardson, P. Zool. Soc. 1850, p. 71. *Harpe vulpina* Waite, Rec. Austr. Mus. iv, 1902, p. 269, pl. 42 (Pl. xxx).

A rare species in New South Wales waters. Length 16 inches.

267. VERREO Jordan & Snyder, Proc. U.S. Nat. Mus. xxiv, 1902, p. 619 (*oxycephalus*).

A. A large dark spot on the spinous dorsal; body without rows of crimson spots. *oxycephalus* (267a).

AA. No dark spot on the spinous dorsal; 3 rows of crimson spots on each side of body. *bellis* (267b).

267a. V. OXYCEPHALUS. PIG-FISH. *Cossyphus oxycephalus* Bleeker, Versl. Akad. Amsterdam xiv, 1862, p. 129. *V. oxycephalus* Jordan & Snyder, Proc. U.S. Nat. Mus. xxiv, 1902, p. 619, fig. 3 (Pl. xxx).

Lives around sunken reefs, and grows to 15 inches long.

267b. V. BELLIS. BANDED PIG-FISH. *Cossyphus bellis* Ramsay & Ogilby, P.L.S. N.S.W. (2) ii, 1887, p. 561. *Diastodon bellis* Stead, Ed. Fish. N.S. Wales, 1908, p. 82, pl. 51.

Probably only a colour variety of the preceding species.

CXX.

Family NEOODACIDÆ.

A. Cheeks scaly.

Neoodax (268).

AA. Cheeks naked.

B. Dorsal originating above operculum; scales about 30. *Heteroscarus* (269).

BB. Dorsal originating above pectoral; scales about 50. *Olisthops* (270).

268. NEOODAX Castelnau, Res. Fish. Austr. (Viet. Offic. Rec. Philad. Exhib), 1875, p. 37 (*waterhousii*).

The status of the older name *Odar*, which has been allotted to three different genera by Lacepede, Cuvier, and Cuvier and Valenciennes, is so uncertain that it seems to be preferable to use Castelnau's name.

A. About 60 scales on the lateral line.

semifasciatus (268a).

AA. 30-45 scales on the lateral line.

B. Lateral line about 40.

balteatus (268b).

BB. Lateral line about 45.

obscurus (268c).

268a. N. SEMIFASCIATUS. ROCK WHITING. *Odar semifasciatus* Cuv. & Val., H. N. Poiss. xiv, 1839, p. 299, pl. 407. *Odar richardsonii* Gunther, Brit. Mus. Cat. Fish. iv, 1862, p. 241; *Id.* Roughley, Fish. Austr., 1916, p. 159, pl. 55 (Pl. xxxi.).

Common along the southern portion of the coast, and reaching a length of 14 inches. There seems to be nothing to distinguish *N. richardsonii* from *N. semifasciatus*.

268h. *N. BALTEATUS*. LITTLE ROCK WHITING. *Odax balteatus* Cuv. & Val., H. N. Poiss. xiv, 1839, p. 303.

Not uncommon on *Zostera* flats in Port Jackson. Length 7 inches.

An examination of the holotype of *Odax brunneus* Macleay, shows that it has 38-39 scales on the lateral line, not 30 as described, and that it does not differ from *N. balteatus*.

268c. *N. OBSCURUS*. *Odax obscurus* Castelnau, P. Zool. Soc. Vict. i, 1872, p. 154.

Probably synonymous with the preceding species.

269. *OLISTHOFS* Richardson, P. Zool. Soc. 1850, p. 75 (*cyanomelas*).

269a. *O. CYANOMELAS*. HERRING CALE. *Id.* Richardson, *Ibid.*, pl. 3, 1-2; *Id.* McCulloch, Rec. Austr. Mus. xiii. 2, 1920, pl. 14, 3 (Pl. xxxi.).

A rock fish which exhibits great colour variation, the male being usually blackish, while the females are ornamented as in the accompanying figure. Length about 12 inches.

270. *HETEROSCARUS* Castelnau, P. Zool. Soc. Vict. i, 1872, p. 245 (*filamentosus*).

270a. *H. FILAMENTOSUS*. RAINBOW-FISH. *Id.* Castelnau, *Ibid.*; *Id.* Steindachner, Sitzb. Akad. Wiss. Wien lxxxviii. i, 1883, p. 1093, pl. 3, 1 (Pl. xxxi.).

A gorgeously coloured fish which is not uncommon around rocky reefs on the southern portion of the coast. Length about 9 inches.

(*Pseudoscarus octodon* Bleeker has been incorrectly recorded from Port Jackson by Kner, Novara Zool. i, Fische, 1865, p. 262. No member of the family Scaridae is known from the State).

GADOPSIFORMES.

CXXI.

Family GADOPSIDAE.

271. *GADOPSIS* Richardson, Ichth. Erebus & Terror, 1848, p. 122 (*marmoratus*).

271a. *G. MARMORATUS*. RIVER BLACKFISH. *Id.* Richardson, *Ibid.*, pl. 59, 6-11. *Id.* Ogilby, Mem. Qld. Mus. ii, 1913, p. 69, pl. xx. (Pl. xxxi.).

Occurs in the western rivers of New South Wales, and occasionally reaches 15 inches in length.

CHAMPSODONTIFORMES.

CXXII.

Family CHAMPSODONTIDAE.

272. *CHAMPSODON* Gunther, P. Zool. Soc. 1867, p. 102 (*vorax*).

The type of *Centropercis nudivittis* Ogilby apparently offers no characters to separate it from *Champsodon*.

272a. *C. NUDIVITTIS*. *Centropercis nudivittis* Ogilby, P.L.S. N.S.W. (2) x, 1895, p. 320; *Id.* Waite, Mem. Austr. Mus. iv. i, 1899, p. 111, pl. 11, 2 (Pl. xxxii.).

A rare species living in moderate depths on muddy ground. Length 4 inches.

TRACHINIFORMES.

A. Dorsal fin with an anterior spinous portion.

B. Lateral line incomplete, not reaching the tail.

Fam. *Opisthognathidae* (cxxxiii.).

BB. Lateral line complete, reaching the tail.

Fam. *Pinguipedidae* (cxxxiv.).

AA. Dorsal fin without spines.

C. Palate toothless; lateral line near lower surface of body.

Fam. *Creediidae* (cxxxv.).

CC. Palate with teeth.

- D. Lateral line extending along middle or lower half of body.
 E. Mandible not projecting beyond upper jaw.
 Fam. *Linnichthyidae* (cxxxvi).
 EE. Mandible projecting beyond upper jaw.
 Fam. *Leptoscopidae* (cxxxvii).
 DD. Lateral line extending along upper part of body.
 Fam. *Uranoscopidae* (cxxxviii).

CXXIII. Family OPISTHOGNATHIDAE.

273. MEROGYMNUS Ogilby, P. Roy. Soc. Qld. xxi., 1908, p. 18 (*eximius*).
 273a. M. JACKSONIENSIS. LEOPARD FISH. *Opisthognathus jacksoniensis*
 Macleay, P.L.S. N.S.W., v., 1881, p. 570. *Gnathypops jacksoniensis*
 Waite, Rec. Austr. Mus. v., 1904, p. 240, pl. 26, 2 (Pl. xxxi.).
 An ornate and rare fish, growing to 10 inches long.

CXXIV. Family PINGUIPEDIDAE.

274. PARAPERCEIS Bleeker, Nederl. Tijdschr. Dierk. i, 1863, p. 236 (*cylindrica*).
 A. Posterior dorsal spines not shorter than the preceding ones. Subg. Neoperceis.
 B. Lateral line not following curve of back.
 C. Cross-bars of back distinct; no dark blotches below lateral line.
binivirgata (274a).
 CC. Cross-bars of back indistinct; five dark blotches below lateral line.
ramsayi (274b).
 BB. Lateral line following curve of back; back with cross bars. *allporti* (274c).
 AA. Last dorsal spine shorter than the preceding ones. Subg. *Chilias*.
 D. Narrow blue-lines between eyes and across snout. *nebulosus* (274d).
 274a. P. BINIVIRGATA. GRUB-FISH. *Neoperceis binivirgata* Waite, Rec.
 Austr. Mus. v, 1904, p. 236, pl. 25, 3 (Pl. xxxi.).
 A rare species of which few specimens are known. Length 8 inches.
 274b. P. RAMSAYI. *Id.* Steindachner, Sitzb. Akad. Wiss. Wien. lxxxviii.,
 1, 1884, p. 1072. *Paraperceis novae-cambriae* Waite, Mem. Austr. Mus.
 iv., 1, 1899, p. 111, pl. 25 (Pl. xxxi.).
 Another fish which has been rarely taken. Length 8 inches.
 274c. P. ALLPORTI. *Percis allporti* Gunther, A.M.N.H. (4) xvii., 1876, p.
 394. *P. ocellaris* Waite, Mem. Austr. Mus. iv., 1, 1899, p. 109, pl. 24.
 Plentiful in deep water, where it is commonly taken by trawlers. Length
 13 inches.
 274d. P. NEBULOSUS. *Percis nebulosus* Quoy & Gaimard, Voy. Uranie,
 1825, p. 349. *Percis emeryana* Richardson, Icones Piseium, 1843, p. 4,
 pl. 1, 1.
 A tropical species occasionally extending southward to Port Jackson. Length
 11 inches.

CXXV. Family CREEDIIDAE.

275. CREEDA Ogilby, P.L.S. N.S.W., xxiii., 1898, p. 298 (*clathrisquamis*).
 275a. C. HASWELL. *Hemerocoetes haswelli* Ramsay, P.L.S. N.S.W., vi.,
 1881, p. 575. *C. clathrisquamis* Waite, Mem. Austr. Mus., iv., 1, 1899,
 p. 63, fig. 6 (Pl. xxxi.).
 A small and rare species taken by the dredge or trawl. Length 2 inches.

CXXVI.

Family LIMNICHTHYIDAE.

A. Vomer toothless; pectoral rays uniform. *Linnichthys* (276).
 AA. Vomer with teeth; lower pectoral rays thickened and modified.

Schizochirus (277).

276. LIMNICHTHYS Waite, Rec. Austr. Mus. v. 3, 1904, p. 178 (*fasciatus*).

276a. L. FASCIATUS. *Id.* Waite, *Ibid.*, pl. 23, 4 (Pl. xxxi.).

A minute fish not uncommon in sandy pools along the coast. Length under two inches.

277. SCHIZOCHIRUS Waite, Rec. Austr. Mus. v. 4, 1904, p. 241 (*insolens*).

277a. S. INSOLENS. *Id.* Waite, *Ibid.*, p. 242, pl. 26, 3 (Pl. xxxi.).

Known only from two specimens about 2½ inches long.

CXXVII.

Family LEPTOSCOPIIDAE.

A. Scales larger, about five between lateral line and back. *Crapatalus* (278).
 AA. Scales smaller, more than 5 between lateral line and back. *Leptoscopus* (279).

278. CRAPATALUS Gunther, A.M.N.H. (3) vii., 1861, p. 86 (*novae-zelandiae*).

278a. C. ARENARIUS. SAND-FISH. *Id.* McCulloch, P.L.S. N.S.W., xl, 2, 1915, p. 269, pl. 37, 1 (Pl. xxxii.).

A small species 3½ inches long, which burrows in the sand of our coastal beaches.

279. LEPTOSCOPUS Gill, P. Acad. N. Sci. Philad. 1859, p. 133 (*macropygus*).

279a. L. MACROPYGUS. *Uranoscopus macropygus* Richardsou, Ichth. Erebus & Terror, 1846, p. 55, pl. 33, 4-6 (Pl. xxxii.).

Though the type specimen was said to have been obtained in Port Jackson, the species has not since been recognised from Australian waters. It reaches a length of 2 feet in New Zealand.

CXXVIII.

Family URANOSCOPIIDAE.

A. Humeral region with a fringed appendage; body scaly. *Ichthyscopus* (280).
 AA. Humeral region without a fringed appendage.

B. Chin with free dilatations of the mandible; body minutely scaly.

Gnathagnus (281).

BB. Chin without free dilatations of the mandible; body naked.

Kathetostoma (282).

280. ICHTHYSCOPUS Swainson, Nat. Hist. Fish. Amph. Rept. ii., 1839, p. 269 (*inermis*).

280a. I. LEBECK. STARGAZER. *Uranoscopus Le Beck*, Bloch & Schneider, Syst. Ichth., 1801, p. 47. *U. inermis* Valenciennes, Illustr. Poiss. Cuv. R. Anim. 1843, p. 52, pl. 17, 3 (Pl. xxxii.).

Not uncommon, but not generally captured on account of its habit of burying itself in sand or mud. Length 15 inches.

281. GNATHAGNUS Gill, P. Acad. N. Sci. Philad. 1861, p. 115 (*elongatus*).

281a. G. INNOTABILIS. *Id.* Waite, Rec. Austr. Mus. v., 1904, p. 238, pl. 26, 1 (Pl. xxxii.).

Not uncommon in moderately deep water, where it is captured by the trawlers. Length 14 inches.

282. KATHETOSTOMA Gunther, Brit. Mus. Cat. Fish. ii., 1860, p. 231 (*laeve*).

282a. K. LAEVE. STONELIFTER. *Uranoscopus laevis* Bl. Schn., Syst. Ichth., 1801, p. 47, pl. 8. *K. laeve* Waite & McCulloch, Tr. Roy. Soc. S. Austr. xxxix., 1915, p. 471, pl. 13, 3.

A southern species, which burrows in mud or sand. Length 20 inches.

NOTOTHENIIFORMES.
Family BOVICHTHIDAE.

CXXIX.

A. Head and body scaly.

Pseudaphritis (283).

AA. Head and body naked.

Bovichtus (284).283. PSEUDAPHRITIS Castlenau, P. Zool. Soc. Vict., i., 1872, p. 92 (*bassi*).283a. P. URVILLII. *Aphritis urvillii* Cuv. & Val., H.N. Poiss., viii., 1831, p. 484, pl. 243 (Pl. xxxii.).

A southern species, said to occur in both fresh and salt water. Length 12 inches.

(Eleginus bursinus Cuv. & Val., H.N. Poiss., v., 1830, p. 161, which was said to have been taken in Port Jackson, has not been recognised since it was first described, and its affinities are unknown).

284. BOVICHTHUS Cuv. & Val., H.N. Poiss., viii., 1831, p. 486 (*diacanthus*).284a. B. VARIEGATUS. *Bovichthys variegatus* Richardson, Ichth. Erebus & Terror, 1846, p. 56, pl. 34, 1-4 (Pl. xxxii.).

A New Zealand species, said to have been originally obtained in Port Jackson, but which has not since been taken in N.S. Wales.

CALLIONYMIFORMES.

CXXX.

Family CALLIONYMIDAE.

285. CALLIONYMUS Linne, Syst. Nat. 10th. ed. 1758, p. 249 (*lyra*).A. Preopercular spine with a basal antrorse barb below; dorsal rays mostly simple. *calcaratus* (285a).

AA. Preopercular spine without a basal antrorse barb below; dorsal rays mostly branched.

B. Preopercular spine with 2 terminal hooks.

C. 7-8 anal rays.

calauropomus (285b).

CC. 6 anal rays.

papilio (285d).

B. Preopercular spine with 3 hooks above.

phasis (285c).285a. C. CALCARATUS. STINK-FISH. *Id.* Macleay, P.L.S. N.S.W., v., 1881, p. 628.Not rare in Port Jackson, and remarkable for its power of producing an offensive odour. Length 10 inches. This species has been confused with *C. reevesii* Richardson, and *C. curvicornis* Cuv. & Val., in other lists.285b. C. CALAUROPOMUS. DRAGONET. *Id.* Richardson, Ichth. Erebus & Terror, 1844, p. 10, pl. 7, 4-5 (Pl. xxxii.).

Generally taken in nets in Port Jackson. Length 10 inches.

285c. C. PHASIS. *Id.* Gunther, Challenger Zool. i., 1880, p. 28, pl. 15, c. (Pl. xxxii.).

Restricted to deep water, and so far, known from but few specimens. Length 4 inches.

285d. C. PAPILIO. PAINTED DRAGONET. *Id.* Gunther, A.M.N.H. (3) xiv., 1864, p. 197.A small and richly coloured species. *C. lateralis* Macleay, is merely the young of *C. papilio*. Length 5 inches.(*C. lunatus* Schlegel, has been recorded from Fort Jackson by Gunther, Challenger Zool. i., 1880, p. 28, but the identification was probably incorrect).

Suborder SCOMBROIDEA.

- A. Jaws without canines.
 B. Snout not produced into a pointed rostrum or sword.
 C. Mouth with lateral cleft, and well developed teeth.
Scomberiformes (cxxx).
 CC. Mouth small, anterior, with only feeble teeth. *Luvariformes* (cxxxii.).
 BB. Snout forming a long pointed rostrum or sword. *Xiphiiformes* (cxxxiii.-iv.).
 AA. Jaws with canines anteriorly. *Trichiuriformes* (cxxxv.-vi.).

SCOMBRIFORMES.

CXXXI.

Family SCOMBRIDAE.

- A. Caudal peduncle without a median keel on each side.
 B. Scales minute; anterior dorsal spines highest. *Scomber* (286).
 BB. Scales large; median dorsal spines highest. *Gasterochisma* (287).
 AA. Caudal peduncle with a median keel on each side.
 C. A single lateral line on each side.
 D. Body largely naked except near the lateral line and corselet.
 E. Interdorsal space wide, equal to half the head-length. *Auxis* (288).
 EE. Interdorsal space narrow, less than one-fourth the head-length.
Euthynnus (289).
 DD. Body wholly covered with small scales.
 F. Teeth subconical, little compressed; corselet distinct.
 G. Vomer and palatines with villiform teeth. *Thunnus* (290).
 GG. Vomer toothless, palatines with a row of conical teeth.
Sarda (291).
 FF. Teeth compressed; corselet obscure. *Scomberomorus* (292).
 CC. Two lateral lines on each side. *Grammatorycnus* (293).

286. SCOMBER Linne, Syst. Nat. 10th. Ed. 1758, p. 297 (*scombrus*).

286a. S. AUSTRALASICUS. MACKEREL. *Id.* Cuvier & Valenciennes, Hist. Nat. Poiss. viii., 1831, p. 49. *S. colias* Stead, Ed. Fish. N.S. Wales, 1908, p. 94, pl. 63 (Pl. xxxiii.).

Abundant, and periodically moving along the coast in large shoals. Length 14 inches.

287. GASTEROCHISMA Richardson, A.M.N.H., xv., 1845, p. 346 (*melampus*).

287a. G. MELAMPUS. *Id.* Richardson, *Ibid.*, and Ichth. Erebus & Terror, 1846, p. 60, pl. 37, 1-3 (Pl. xxxiii.).

A very rare oceanic species, altering considerably in appearance with growth. Length over 5 feet.

288. AUXIS Cuvier, R. Anim. 2nd ed., ii., 1829, p. 199 (*rochei*).

A. 8 dorsal and 7 anal finlets. *thazard* (288a).
 AA. 6 dorsal and 6 anal finlets. *ramsayi* (288b).

288a. A. THAZARD. FRIGATE MACKEREL. *Scomber thazard* Lacepede, H.N., Poiss. iii., 1802, p. 9. *A. vulgaris* Cuvier & Valenciennes, H.N. Poiss., viii., 1831, p. 139, pl. 216 (Pl. xxxiii.).

A widely distributed oceanic fish which occasionally appears in small shoals in Port Jackson. Length 15 inches.

288b. A. RAMSAYI. *Id.* Castelnau, P.L.S. N.S.W., iii., 1879, p. 382.

As no specimens having the characters ascribed to this species have been secured since it was first described, it is probable that the description is incorrect. *A. ramsayi* is probably synonymous with *A. thazard*.

289. EUTHYNNUS Jordan & Gilbert, Bull. U.S. Nat. Mus., xvi., 1882, p. 429 (*thunnina*).
- A. Lateral line curved below second dorsal; 4 longitudinal stripes on lower half of body. *pelamis* (289a).
- AA. Lateral line not so curved; no stripes on lower half of body. *alletterata* (289b).
- 289a. E. PELAMIS. BONITO. *Scomber pelamis* Linne, Syst. Nat. 10th. ed., 1758, p. 297. *Thynnus pelamis* Schlegel, Faun. Japon. Pisc., 1839, p. 96, pl. 49 (Pl. xxxiii.).
- An oceanic species of which the only record from New South Wales waters is unsatisfactory. Length 3 feet.
- 289b. E. ALLETTERATA. LITTLE TUNNY. *Scomber alletteratus* Rafinesque, Caratteri, 1810, p. 46. *Gymnosarda alletterata* Jordan & Evermann, Bull. U.S. Nat. Mus., No. 47-1, 1896, p. 869, pl. 134, 366.
- Occurs periodically in schools off the coast, and is occasionally captured by rod fishermen. Length 30 inches.
290. THYNNUS South, Encycl. Metropol. v., 1845, p. 620 (*thynnus*).
- A. Pectoral fin much shorter than the head. *maccoyii* (290a).
- AA. Pectoral fin as long as head. *germo* (290b).
- 290a. T. MACCOYII. SOUTHERN TUNNY. *Thynnus maccoyii* Castlenau, P. Zool. Soc. Vict., i., 1872, p. 104. *Thynnus thynnus* McCoy, Prodr. Zool. Soc. Vict., dec. v., 1880, pl. 44, 2 (Pl. xxxiii.).
- This species is possibly identical with the Tunny of the Mediterranean and Atlantic. Length 7 feet.
- 290b. T. GERMO. ALBACORE. *Scomber germo* Lacepede, H.N. Poiss. iii., 1802, p. 1. *Thynnus sibi* Schlegel, Faun. Japon. Pisc., 1844, p. 97, pl. 50.
- Though but once recognised from the New South Wales coast, this species is probably a regular visitor to our waters. Length 4 feet.
291. SARDA Cuvier, R. Anim. 2nd. ed., ii., 1829, p. 199 (*sarda*).
- 291a. S. CHILIENSIS. HORSE MACKEREL. *Pelamys chiliensis* Cuv. & Val., H.N. Poiss. viii., 1831, p. 163; *Id.* Day, Fish. India, 1876, p. 253, pl. 56, 1 (Pl. xxxiii.).
- Appears at intervals in shoals on the coast. Length about 3 feet.
292. SCOMBEROMORUS Lacepede, H.N. Poiss. iii., 1802, p. 292 (*plumieri*).
- A. Sides with bluish subvertical bars. *commersonii* (292a).
- AA. Side with dark ovate or circular spots. *guttatus* (292b).
- 292a. S. COMMERSONI. BARRED SPANISH MACKEREL. *Scomber commersonii* Shaw, Gen. Zool. iv., 1803, p. 589, pl. 85, after *S. commerson* Lacepede, H.N. Poiss., ii., 1800, p. 600, pl. 20, 1. *Cybiium commersonii* Day, Fish. India, 1876, p. 255, pl. 56, 5 (Pl. xxxiii.).
- A fine fish captured by rod fishermen on the coast. Length 4½ feet.
- 292b. S. GUTTATUS. SPOTTED SPANISH MACKEREL. *Scomber guttatus* Bloch & Schneider, Syst. Ichth., 1801, p. 23, pl. 5. *Cybiium guttatum* Day, Fish. India, 1876, p. 255, pl. 56, 4.
- Occurs in shoals, and is captured on the coast like the preceding species. Length 6 feet.

293. GRAMMATORYCNUS Gill, P. Acad. N. Sci. Philad., 1862, p. 125 (*bilineatus*).

293a. G. BICARINATUS. LARGE-SCALED TUNNY. *Thynnus bicarinatus* Quoy & Gaimard, Voy. Uranie, 1825, p. 357, pl. 61, 1. *G. bicarinatus* McCulloch, P.L.S. N.S.W., xl, 1915, p. 266, pl. 35, 1 (Pl. xxxiii.).

A little known species which probably appears at intervals on the coast of New South Wales, but which has been but rarely captured. Length 3 feet.

LUVARIFORMES.

CXXXXII. Family LUVARIDAE.

294. LUVARUS Rafinesque, Caratteri, 1810, p. 22 (*imperialis*).

294a. L. IMPERIALIS. *Id.* Rafinesque, *Ibid.*; *Id.* Day, Fish. Gt. Brit. & Irel. i., 1880-84, p. 121, pl. 43 (Pl. xxxiii.).

A wide-world oceanic species, once recorded from N.S. Wales waters. Length 6 feet.

XIPHIIFORMES.

A. No ventral fins or teeth in adults; scales obsolete. Fam. *Xiphiidae* (cxxxiii.).
AA. Ventral fins and teeth present; scales present. Fam. *Istiophoridae* (cxxxiv.).

CXXXXIII. Family XIPHIIDAE.

295. XIPHIAS Linne, Syst. Nat. 10th. ed., 1758, p. 248 (*gladius*).

295a. X. GLADIUS. SPEAR-FISH. *Id.* Linne, *Ibid.*; *Id.* Day, Fish. Gt. Brit. & Irel. i., 1880-84, p. 146, pl. 49, 1-2 (Pl. xxxiv.).

Occurring in all temperate and tropical oceans. Length 15 feet.

CXXXXIV. Family ISTIOPHORIDAE.

A. Ventral rays 2 or 3; dorsal fin high and undivided. *Istiophorus* (296).
AA. A single ventral ray; dorsal low, divided in adults. *Tetrapturus* (297).

296. ISTIOPHORUS Lacepede, H.N. Poiss, iii., 1802, p. 374 (*gladifer*).

296a. I. GLADIUS. SAIL-FISH. *Scomber gladius* Broussonet, Mem. Acad. Sci., 1876, p. 451, pl. 10. *I. gladius* McCulloch, Rec. Aust. Mus., xiii., 4, 1921, p. 137, pl. 24, 1 (Pl. xxxiv.).

An oceanic wanderer in the tropics, sometimes ranging southward to N.S. Wales waters.

297. TETRAPTURUS Rafinesque, Caratteri, 1810, p. 54 (*belone*).

297a. T. INDICUS. SWORD-FISH. *Id.* Cuvier & Valenciennes, H.N. Poiss., viii., 1831, p. 286. *Istiophorus gladius* Ramsay (nec. Broussonet), P.L.S. N.S.W., v., 1881, p. 295, pl. 8 (Pl. xxxiv.).

Occurs along the coast and reaches a length of 14 feet.

TRICHIURIFORMES.

A. Ventral fins reduced to scale-like appendages or absent.
Fam. *Trichiuridae* (cxxxv.).
AA. Each ventral fin represented by a spine, with or without rays.
Fam. *Gempyllidae* (cxxxvi.).

CXXXV.

Family TRICHIURIDAE.

A. Caudal fin wanting, tail ending in a fine point. *Trichiurus* (298).
 AA. Caudal fin present. *Lepidopus* (299).

298. TRICHIURUS Linne, Syst. Nat. 10th. ed., 1758, p. 246 (*lepturus*).

298a. T. COXII. HAIR-TAIL. *Id.* Ramsay & Ogilby, P.L.S. N.S.W. (2),
 ii., 1887, p. 562 (Pl. xxxiv., an allied species *T. lepturus*).

Occasionally appears plentifully in deeper inlets along the coast. Length
 4 feet.

299. LEPIDOPUS Gouan, Hist. Pisc., 1770, p. 107 (*gouani*).

299a. L. CAUDATUS. FROST FISH. *Trichiurus caudatus* Euphrasen, Stockh.
 K. Vet. Akad. Nya Handl. ix., 1788, p. 52, pl. 9, 2. *L. caudatus* Day,
 Fish. Gt. Brit. & Irel. i., 1880-4, p. 156, pl. 51, 2 (Pl. xxxiv.).

Widely distributed in both hemispheres. A young example taken by the
 trawlers is the only specimen recorded from the State. Length 6 feet.

CXXXVI.

Family GEMPYLLIDAE.

A. Lateral line double; two separate rays behind dorsal and anal fins. *Jordanidia* (300).
 AA. Lateral line single; 5-7 finlets behind dorsal and anal fins. *Thyrsites* (301).

300. JORDANIDIA Snyder, F.U.S. Nat. Mus. xl., 1911, p. 527 (*raptoria*).

300a. J. SOLANDRI. KING BARRACOUTA. *Gempylus solandri* Cuv. & Val.,
 H.N. Poiss. viii., 1831, p. 215. *Rexea furcifera* Waite, Rec. Cantb. Mus.
 i. 3, 1911, p. 236, pl. lii. (Pl. xxxiv.).

A southern species, recently captured in 150 fathoms east of Sydney by
 the State Trawlers. A valuable food-fish. Length 30 inches.

301. THYRSITES Cuvier, R. Anim. 2nd. ed., ii., 1829, p. 200 (*atun*).

301a. T. ATUN. BARRACOUTA. *Scomber atun* Euphrasen, Stockh. Vet. Akad.
 Nya Handl. xii., 1791, p. 315. *T. atun* McCulloch, Rec. Austr. Mus.
 xiii. 4, 1921, p. 139, pl. 24, 2 (Pl. xxxiv.).

Visits the coast periodically in large schools. Length 4 feet.

Suborders TEUTHIDOIDEA and SIGANOIDEA.

A. Anal fin with two 2 or 3 spines (*Teuthidoidea*).
 B. Teeth in a single row in each jaw. Fam. *Teuthididae* (cxxxvii.).
 BB. Teeth in several rows, brush like. Fam. *Zanclidae* (cxxxviii.).
 AA. Anal fin with 7 spines (*Siganoidea*). Fam. *Siganidae* (cxxxix.).

CXXXVII.

Family TEUTHIDAE (vel ACANTHURIDAE Auct.).

A. A single movable spine on each side of the caudal peduncle. *Teuthis* (302).
 AA. Three or more tubercles on the caudal peduncle.

B. Three caudal tubercles. *Xesurus* (303).
 BB. More than three caudal tubercles. *Prionurus* (304).

302. TEUTHIS Linne, Syst. Nat. 12th. ed., 1766, p. 507 (*hepatus*).

This genus has been commonly called *Acanthurus* or *Hepatus*. It has no
 affinity with *Teuthis* of most authors, which now must be known as *Siganus*.

A. Body light, with dark cross bands. *trioestegus* (300a).
 AA. Body dark, with narrow wavy lines. *grammoptilus* (300b).

302a. T. TRIOSTEGUS. BANDED SURGEON-FISH. *Chaetodon triostegus* Linne, Syst. Nat. 10th. ed., 1758, p. 274. *Acanthurus triostegus* Day, Fish. India, 1876, p. 204, pl. 48, 2.

A tropical species, which wanders southwards into our waters. Length 6 inches.

302h. T. GRAMMOPTILUS. SURGEON-FISH. *Acanthurus grammoptilus* Richardson, A.M.N.H., xi., 1842, p. 176. *T. grammoptilus* McCulloch, Mem. Qld. Mus. vi., 1918, p. 92, pl. 28 (Pl. xli.).

Another tropical fish, rare on the New South Wales coast. Length 13 inches.

303. XESURUS Jordan & Evermann, Rept. U.S. Fish. Comm. 1895 (1896), p. 421 (*punctatus*).

303a. X. MACULATUS. *Prionurus maculatus* Ogilby, F. Zool. Soc. 1887, p. 395.

Occasionally captured by line on the coast. Length 17 inches.

304. PRIONURUS Lacepede, Ann. Mus. Hist. Nat. iv., 1804, p. 211 (*microlepidotus*).

304a. P. MICROLEPIDOTUS. *Id.* Lacepede, *Ibid.* *Id.* Cuv. & Val., H.N. Poiss. x., 1835, p. 295, pl. 292 (Pl. xli.).

Lives among rocks and feeds upon sea-weeds. Length 18 inches.

CXXXVIII.

Family ZANCLIDAE.

305. ZANCLUS Cuv. & Val., H.N. Poiss. vii., 1831, p. 102 (*cornutus*).

305a. Z. CANESCENS. MOORISH IDOL. *Chaetodon canescens* Linne, Syst. Nat. 10th. ed., 1758, p. 272. *Z. cornutus* Day, Fish. India, 1875, p. 111, pl. 28, 4 (Pl. xli.).

A tropical species which only rarely strays southward of Queensland. Length 7 inches.

Suborder SIGANOIDEA.

CXXXIX.

Family SIGANIDAE.

306. SIGANUS Forskal, Descr. Anim., 1775, pp. x, 25 (*rivulatus*).

A. Body with light spots above and stripes below. *javus* (306a).
AA. Body with irregular dark brown spots. *nebulosus* (306b).

306a. S. JAVUS. *Teuthis javus* Linne, Syst. Nat. 12th. ed., 1766, p. 507; *Id.* Day, Fish. India, 1875, p. 165, pl. 39, 5 (Pl. xli.).

A tropical species, occasionally ranging into New South Wales waters.

306b. S. NEBULOSUS. BLACK TREVALLY. *Amphacanthus nebulosus* Quoy & Gaimard, Voy. Uranie, 1825, p. 369. *Siganus nebulosus* Stead, Ed. Fish. N.S. Wales, 1908, p. 81, pl. 49.

Occasionally plentiful in Port Jackson, and more plentiful northwards. Length 10 inches.

(*S. sutor* Cuv. & Val., has been included in a list of New South Wales fishes by Waite, Mem. N.S. Wales Nat. Club, ii., 1904, p. 36, and Kner, Novara Zool., i., 1865, p. 207, has recorded *S. hexagonta* Bleeker, from Sydney. It is unlikely that either species occurs within the waters of this State).

Suborder GOBIOIDEA.

CXL. Family GOBIDAE.

- A. Ventral fins more or less united, with an anterior membrane connecting their spines. Subfam. *Gobiinae* (307-312).
 AA. Ventral fins separate, no anterior membrane between their spines. Subfam. *Electrinae* (313-317).

Subfamily GOBINAE.

- A. Soft dorsal and anal short, free from the caudal.
 B. Head with prominent raised papillose ridges. *Callogobius* (311).
 BB. Head with only microscopic papillae in rows.
 C. Upper pectoral rays forming free filaments. *Bathygobius* (308).
 CC. Upper pectoral rays normal, not free.
 D. Scales larger, 50 or less in a longitudinal row.
 E. Operculum naked. *Gobius* (309).
 EE. Operculum scaly.
 F. 30 or less scales between operculum and tail. *Gobius australis* (309a).
 FF. 31-47 scales between operculum and tail. *Mujilogobius* (307).
 DD. Scales smaller, about 90 in a longitudinal row. *Cryptocentrus* (310).
 AA. Soft dorsal and anal long, partly united with the caudal; D.VI./38-48. *Leme* (312).

307. MUGILOGOBIUS Smitt, Ofv. Vet. Akad. Forh., 1899, p. 543 (*abei*).

307a. M. DEVISI. *Id.* McCulloch & Ogilby, Rec. Austr. Mus. xii., 10, 1919, p. 223, pl. 36, 2.

Specimens in the Australian Museum were collected near Trial Bay by Mr. J. R. Kinghorn, Jan. 1920. Length nearly 2 inches.

308. BATHYGOBIUS Bleeker, Arch. Neerl. Sci. Nat., xiii., 1878, p. 54 (*nebulopunctatus*).

308a. B. KREFFTH. *Gobius krefftii* Steindachner, Sitzb. Akad. Wiss. Wien. liii. i., 1866, p. 451. *Mapo krefftii* McCulloch & Ogilby, Rec. Austr. Mus. xii. 10, 1919, p. 234, pl. 33, 4 (Pl. xxxv.).

Abundant in inlets along the coast. Length about 3 inches.

The specimen recorded by Gunther, Challenger Zool. i., 1880, p. 28, as *G. albopunctatus* Cuv. & Val., from Port Jackson, is evidently referable to *B. krefftii*.

309. GOBIUS Linne, Syst. Nat. 10th. ed., 1758, p. 262 (*niger*).

None of the following species are referable to *Gobius* in its restricted sense, but are retained within the genus until their true generic positions can be determined.

- A. Operculum scaly; head much compressed in adults. *australis* (309a).
 AA. Operculum naked; head not compressed.
 B. Nape and greater portion of neck naked.
 C. Breast and base of pectoral naked. *lidwulli* (309b).
 CC. Breast and base of pectoral scaly.
 D. Upper surface of head without spots; dorsal fins longitudinally banded. *bifrenatus* (309c).
 DD. Upper surface of head with dark spots; dorsal fin with oblique rows of grey spots. *semifrenatus* (309d).
 DDD. *G. frenatus* apparently comes near here. *frenatus* (309e).
 BB. Nape and neck scaly. *lateralis*, var. *obliquus* (309f).

309a. G. AUSTRALIS. *Gillichthys australis* Ogilby, P.L.S. N.S.W. (2) ix., 1894, p. 367. *Gobius australis* McCulloch, Rec. Austr. Mus. xi. 7, 1917, p. 187, pl. 31, 3 (Pl. xxxv.).

A minute species, 2 inches long, of which adult males are remarkably compressed and have huge mouths extending far backward.

309b. G. LIDWILLI. *Id.* McCulloch, Rec. Austr. Mus. xi. 7, 1917, p. 185, pl. 31, 2 (Pl. xxxv.).

One of the smallest of vertebrate animals, adults being little more than half an inch in length.

309c. G. BIFRENATUS. BRIDLED GOBY. *Id.* Kner, Novara Zool. i., Fische, 1865, p. 177, pl. 7, 3.

Plentiful on muddy ground and among sea-grass, where it is taken in prawn-nets. Length 6 inches.

309d. G. SEMIFRENATUS. *Id.* Macleay, P.L.S. N.S.W., v., 1881, p. 598; *Id.* McCulloch & Ogilby, Rec. Austr. Mus. xii. 10, 1919, p. 214, pl. 34, 2 (Pl. xxxv.).

Commonly associated with, and very similar to the preceding species.

309e. G. FRENATUS. *Id.* Gunther, Brit. Mus. Cat. Fish. iii., 1861, p. 39; *Id.* Kner, Novara Zool. i., Fische, 1865, p. 174.

Apparently similar to the preceding species. Length 4 inches.

309f. G. LATERALIS, var. OBLIQUUS. *Id.* McCulloch & Ogilby, Rec. Austr. Mus. xii. 10, 1919, p. 249, pl. 34, 4.

Common in shallow water in inlets along the coast. Length about 2½ inches.

310. CRYPTOCENTRUS Cuv. & Val., Hist. Nat. Poiss. xii., 1837, p. 111 (*cryptocentrus*).

310a. C. GOBIOIDES. CRESTED GOBY. *Gobius gobioides* Ogilby, Cat. Fish. N.S. Wales, 1886, p. 35. *C. gobioides* McCulloch & Ogilby, Rec. Austr. Mus. xii. 10, 1919, p. 255, pl. 36, 1 (Pl. xxxv.).

Not uncommon on muddy grounds, and remarkable for its bright colouration. Length about 4 inches.

311. CALLOGOBIUS Bleeker, Arch. Neerl. Sci. Nat. ix., 1874, p. 318 (*hasseltii*).

311a. C. HASSELTII, var. MUCOSUS. *Gobius mucosus* Gunther, F. Zool. Soc., 1871, p. 663, pl. 63, a. *C. hasseltii* var. *mucosus* McCulloch & Ogilby, Rec. Austr. Mus., xii. 10, 1919, p. 217, pl. 32, 4 (Pl. xxxv.).

A southern species which is not uncommon along the coast. Length about 4 inches.

312. LEME De Vis, P.L.S. N.S.W. viii., 1883, p. 286 (*mordax*).

312a. L. PURPURASCENS. *Id.* De Vis, P.L.S. N.S.W., ix., 1884, p. 698; *Id.* McCulloch & Ogilby, Rec. Austr. Mus. xii. 10, 1919, p. 206, pl. 31, 3 (Pl. xxxv.).

An elongate fish with minute eyes, and scaleless body, which lives in estuaries of rivers. Length about 9 inches.

(Tenison Woods, Fish. & Fisher, N.S.W., 1882, p. 27, intimates the occurrence of *Periophthalmodon barbarus* Linne, which is almost certainly incorrect).

Subfamily ELEOTRINAE.

- | | |
|--|----------------------------|
| A. Top of head without bony crests. | |
| B. Cheeks and opercles naked. | <i>Philypnodon</i> (313). |
| BB. Opercles scaly, cheeks more or less scaly. | |
| C. Interorbital space scaly. | <i>Mogurnda</i> (314). |
| CC. Interorbital space naked | |
| D. Scales smaller, 37-40. | <i>Gobiomorphus</i> (315). |
| DD. Scales larger, 27-35. | <i>Carassiops</i> (316). |
| AA. Top of head with bony crests. | <i>Butis</i> (317). |

313. PHILYPNODON Bleeker, Arch. Neerl. Sci. Nat. ix., 1874, p. 301 (*nudiceps*).
 313a. P. GRANDICEPS. FLAT-HEADED GUDGEON. *Eleotris grandiceps* Krefft, P. Zool. Soc., 1864, p. 183. *P. grandiceps* Waite, Rec. Austr. Mus. v., 1904, p. 285, pl. 36, 2 (Pl. xxxv.).
 Plentiful in streams and waterholes around Sydney. Length $3\frac{1}{2}$ inches.
314. MÖGURNDA Gill, P. Acad. N. Sci. Philad., 1863, p. 270 (*mogurnda*).
 A. Dorsal with 11-13 rays, body spotted. *adpersus* (314a).
 AA. Dorsal with 9 rays, body striped. *australis* (314b).
- 314a. MÖGURNDA MÖGURNDA ADSPERSUS. PURPLE-SPOTTED GUDGEON. *Eleotris adpersus* Castlenau, P.L.S. N.S.W. iii., 1878, p. 142. *Krefftius adpersus* Waite, Rec. Austr. Mus. v., 1904, p. 282, pl. 35, 1 (Pl. xxxvi.).
 Occurs in the western rivers of the State, and in a few of the northern coastal streams. Length $4\frac{1}{2}$ inches.
 (*Eleotris striata* Steindachner, Sitzb. Akad. Wiss. Wien liii., 1866, p. 452, from Port Jackson, is apparently near *M. m. adpersus*).
- 314b. M. AUSTRALIS. STRIPED GUDGEON. *Eleotris australis* Krefft, P. Zool. Soc., 1864, p. 183. *Krefftius australis* Waite, Rec. Austr. Mus. v., 1904, p. 283, pl. 35, 2 (Pl. xxxvi.).
 Occurs in the eastern rivers of the State. Length 7 inches.
315. GOBIOMORPHUS Gill, P. Ac. N. Sci. Philad. 1863, p. 270 (*gobioides*).
 315a. G. COXII. GUDGEON. *Eleotris coxii* Krefft, P. Zool. Soc. 1864, p. 183. *Krefftius coxii* Waite, Rec. Austr. Mus. v. 5, 1904, p. 283, pl. 36, 1 (Pl. xxxvi.).
 Plentiful in the Nepean River system. Length 7 inches.
316. CARASSIOPS Ogilby, P.L.S. N.S.W. xxi., 1897, p. 732 (*compressus*).
 A. Second dorsal with 9-10 rays. *compressus* (316a).
 AA. Second dorsal with 11-14 rays. subg. *Austrogobio*.
 B. Mediolateral scales without dark markings. *galii* (316b).
 BB. Each mediolateral scale with a dark vertical bar. *klunzingeri* (316c).
- 316a. C. COMPRESSUS. CARP GUDGEON. *Eleotris compressus* Krefft, P. Zool. Soc., 1864, p. 184. *C. compressus* Waite, Rec. Austr. Mus. v., 1904, p. 280, pl. 34, 1 (Pl. xxxvi.).
 A species which is very variable in both form and colouration. Restricted to the eastern rivers in New South Wales. Length 4 inches.
- 316b. C. GALII. FIRE-TAILED GUDGEON. *Id.* Ogilby, P.L.S. N.S.W. xxii. 4, 1898, p. 788. *Id.* Waite, Rec. Austr. Mus. v., 1904, p. 281, pl. 34, 2 (Pl. xxxvi.).
 Common in southern Queensland, and introduced into the Botanic Gardens, Sydney. Length about 2 inches.
- 316c. C. KLUNZINGERI. WESTERN CARP GUDGEON. *Id.* Ogilby, P.L.S. N.S.W. xxii., 1898, p. 787. *Id.* McCulloch & Ogilby, Rec. Austr. Mus. xii. 10, 1919, p. 289, pl. 37, 2-3.
 Occurs in all the western streams of the State, and remarkable for the difference in appearance of the two sexes. Length $2\frac{1}{2}$ inches.

317. BUTIS Bleeker, Nat. Tijd. Ned. Ind. xi., 1856, p. 412 (*butis*).

317a. B. AMBOINENSIS. *Eleotris amboinensis* Bleeker, Nat. Tijd. Ned. Ind. v., 1853, p. 343. *B. amboinensis* McCulloch & Ogilby, Rec. Austr. Mus. xii. 10, 1919, p. 271, pl. 36, 4 (Pl. xxxvi.).

A northern species, recorded from the Tweed River estuary. Length 6 inches.

Suborder BLENNIOIDEA.

CXLI.

Family BLENNIIDAE.

A. One or two dorsal fins.

B. Teeth slender and flattened, forming a comb-like row in each jaw; lateral canines present.

C. Gill-openings wide, separated by a narrow isthmus. *Blennius* (318).

CC. Gill-openings narrow, lateral.

D. Dorsal and anal fins not united with caudal; body shorter.

E. Gill-opening entirely above base of pectoral. *Petroscirtes* (319).

EE. Gill-opening partly in front of base of pectoral.

Aspidontus (320).

DD. Dorsal and anal fins united with caudal; body elongate.

Xiphasia (321).

BB. Jaws without either rows of comb-like teeth or large lateral canines.

F. Three anterior dorsal spines forming a separate fin above the head.

G. First dorsal spine over or in advance of eye. *Cristiceps* (322).

GG. First dorsal spine behind vertical of eye. *Petraites* (323).

FF. A single dorsal fin, almost or entirely composed of spines.

H. Vomer with teeth. *Opnclinus* (324).

HH. Palate toothless. *Sticharium* (325).

AA. Three dorsal fins.

I. Lateral line interrupted.

J. Head scaly.

Gillias (326).

JJ. Head naked.

Tripterygion (327).

II. Lateral line complete.

Lepidoblennius (328).

318. BLENNIUS Linne, Syst. Nat. 10th ed., 1758, p. 256 (*ocellaris*).

318a. B. TASMANIANUS. *Id.* Richardson, P. Zool. Soc., 1839, p. 99. *Id.* Waite, Rec. Austr. Mus. vi., 1906, p. 205, pl. 36, 5 (Pl. xxxvi.).

A southern species, which extends northward along the N.S. Wales Coast. Length 5 inches.

319. PETROSCIRTES Ruppell, Fische Roth. Meer, 1828, p. 110 (*mitratus*).

A. Teeth forming a nearly straight row across the front of each jaw.

variabilis (319a).

AA. Teeth forming a curved row around each jaw.

B. A crest usually present above the head; body much compressed.

anolius (319b).

BB. No crest above the head; body thicker.

rotundiceps (319c).

319a. P. VARIABILIS. SABRE-TOOTHED BLENNY. *Id.* Cantor, Cat. Malay. Fish., 1850, p. 200; *Id.* Day, Fish. India, 1876, p. 327, pl. 69, 7.

A widely distributed species. Length 5 inches.

319b. P. ANOLIUS. OYSTER BLENNY. *Blennechis anolius* Cuv. & Val., H.N. Poiss. xi., 1836, p. 288. *P. anolius* McCulloch, Austr. Zool. i. 4, 1917, p. 90, pl. 10, 2 (Pl. xxxvii.).

A remarkable little fish which lives in the empty shells of oysters where it deposits its eggs and guards them until they are hatched. Length 3 inches.

- 319c. *P. ROTUNDICEPS*. *Id.* Macleay, P.L.S. N.S.W. vi., 1881, p. 9.
A brightly coloured species, with fine blue lines on the sides. Length 3½ inches.
(*P. solorensis* Bleeker, has been incorrectly recorded from Sydney by Kner, Novara Zool. i., Fische, 1865, p. 196).
320. *ASPIDONTUS* Quoy & Gaimard, Voy. Astrolabe iii., 1834, p. 719 (*taeniatus*).
- 320a. *A. MAROUBRAE*. *Macrurrhynchus maroubrae* Ogilby, P.L.S. N.S.W. xxi., 1896, p. 137. *A. maroubrae* McCulloch, Austr. Zool. i. 4, 1917, p. 92, pl. 10, 1 (Pl. xxxvii.).
A rare species only 2 inches long.
321. *XIPHASIA* Swainson, Nat. Hist. Fish. Amph. Rept. ii., 1839, p. 259 (*setifer*).
- 321a. *X. SETIFER*. HAIR-TAILED BLENNY. *Id.* Swainson, *Ibid.*; *Id.* Day, Fish. India, 1876, p. 337, pl. 73, 1 (Pl. xxxvii.).
A pelagic fish, which occasionally strays southward to Port Jackson. Length 20 inches.
322. *CRISTICEPS* Cuvier & Valenciennes, H.N. Poiss. xi., 1836, p. 402 (*australis*).
- A. Anterior spine just before front margin of eye. *aurantiacus* (322a).
AA. Anterior spine over front half of eye. *argyropleura* (322b).
AAA. Anterior spine over hinder portion of eye. *australis* (322c).
- 322a. *C. AURANTIACUS*. CRESTED WEED-FISH. *Id.* Castlenau, P.L.S. N.S.W. iii., 1879, p. 386. *Id.* McCulloch, Rec. Austr. Mus. vii. 1, 1908, p. 38, pl. 10, 1 (Pl. xxxvii.).
Common among weeds in estuaries. Length 10 inches.
- 322b. *C. ARGYROPLEURA*. *Id.* Kner, Novara Zool. I, Fische I, 1865, p. 199, pl. 7, 4.
Similar to, but not so common as the preceding species.
- 322c. *C. AUSTRALIS*. *Id.* Cuv. & Val., H.N. Poiss. xi., 1836, p. 402, pl. 336. Very common among weeds. Length 9 inches.
323. *PETRAITES* Ogilby, P.L.S. N.S.W. x., 1885, p. 226 (*heptaolus*).
- A. Body deep, its depth more than a fifth of the total length.
B. 35 equidistant dorsal rays. *roseus* (323a).
BB. 3 dorsal rays, an interspace between the 1st and 2nd. *heptaolus* (213b).
AA. Body narrower, its depth less than a fifth of the total length. *fasciatus* (213c).
Cristiceps antiectes and *C. nasutus* are apparently near *P. fasciatus*.
- 323a. *P. ROSEUS*. *Cristiceps roseus* Gunther, Brit. Mus. Cat. Fish., iii., 1861, p. 274. *P. roseus* McCulloch, Rec. Austr. Mus. vii. 1, 1908, p. 40, pl. 10, 4 (Pl. xxxvii.).
Fairly common among weeds in rock-pools along the coast. Length 5 inches.
- 323b. *P. HEPTAEOLUS*. *Id.* Ogilby, P.L.S. N.S.W. x., 1885, p. 226; *Id.* McCulloch, Rec. Austr. Mus., vii. 1, 1908, p. 41, pl. 11, 1.
Similar to and occurring with the preceding species.

- 323c. *P. FASCIATUS*. *Cristiceps fasciatus* Macleay, P.L.S. N.S.W., vi., 1881, p. 19. *P. fasciatus* McCulloch, Rec. Austr. Mus. vii. 1, 1908, p. 42, pl. 11, 2.
Extremely plentiful in rock-pools on the coast. Length 2½ inches.
- 323d. *F. ANTINETES*. *Cristiceps antinetes* Gunther, Brit. Mus. Cat. Fish. iii., 1861, p. 273-footnote.
A species which has been only imperfectly characterised, and is but little known.
- 323e. *P. NASUTUS*. *Cristiceps nasutus* Gunther, Brit. Mus. Cat. Fish. iii., 1861, p. 273.
Another little known species, nearly 2 inches long, which has not been recognised since first described.
324. *OPHICLINUS* Castlenau, P. Zool. Soc. Viet. i., 1872, p. 246 (*antarcticus*).
324a. *O. GRACILIS*. *Ophioclinus gracilis* Waite, Réc. Austr. Mus. vi. 3, 1906, p. 207, pl. 36, 6 (Pl. xxxvii.).
Not uncommon in rock-pools on the coast. Length 2½ inches.
325. *STICHARIUM* Gunther, A.M.N.H. (3) xx., 1867, p. 63 (*dorsale*).
325a. *S. DORSALE*. *Id.* Gunther, *Ibid.*
An apparently rare species, supposed to have been obtained in Port Jackson, but which has not been collected since first described.
326. *GILLIAS* Evermann & Marsh, Rept. U.S. Fish. Comm. xxv., 1899, p. 357 (*jordani*).
326a. *G. STRIATICEPS*. *Tripterygium striaticeps* Ramsay & Ogilby, P.L.S. N.S.W. (2) iii., 1888, p. 419.
Occurs in rock-pools in Port Jackson. Length 1½ inches.
327. *TRIPTERYGION* Risso, Hist. Nat. Europ. Merid. iii., 1826, p. 241 (*nasus*).
327a. *T. ANNULATUM*. *Tripterygion annulatum* Ramsay & Ogilby, P.L.S. N.S.W. (2) ii., 1888, p. 1021.
Very plentiful in rock-pools, and varying from bright green to scarlet. Length about 2 inches.
328. *LEPIDOBLENNIUS* Steindachner, Sitzb. Akad. Wiss. Wien lv. i., 1867, p. 11 (*haplodactylus*).
328a. *L. HAPLODACTYLUS*. JUMPING JOEY. *Id.* Steindachner, *Ibid.*, p. 12, pl. 1, 2-3 (Pl. xxxvi.).
Abundant on the coast, where it is commonly observed out of water sunning itself on the wet rocks. It skips into the nearest pool when alarmed. Length 4 inches.

Suborder OPHIDIOIDEA.

- A. Ventrals inserted near the chin below the glossohyal; dorsal and anal fins confluent with the caudal. Fam. *Ophidiidae* (cxlii.).
AA. Ventrals jugular, attached to the humeral arch; caudal fin free in N.S. Wales species. Fam. *Brotulidae* (cxliiii.).

CXLII.

Family OPHIDIIDÆ.

A. Mandible with an enlarged outer row of teeth, and an inner narrow band of smaller ones. *Genypterus* (329).

AA. Mandible with a narrow band of strong subequal teeth. *Otophidium* (330).

329. GENYPTERUS Phillipi, Arch. Naturg. xxiii. i, 1857, p. 268 (*nigricans*).

329a. G. BLACODES. ROCKLING. *Ophidium blacodes* Bloch & Schneider, Syst. Ichth., 1801, p. 484. *Genypterus australis* McCoy, Prodr. Zool. Vict. dec. iii., 1879, pl. 21, 1 (Pl. xxxvii—an allied species *G. microstomus*).

A southern species, occasionally captured on the N.S. Wales coast. Length 3 feet.

330. OTOPHIDIUM Jordan, Rept. U.S. Fish. Comm., 1885 (1887), p. 126 (*omostigma*).

330a. O. GENYOPUS. *Id.* Ogilby, P.L.S. N.S.W. xxii., 1897, p. 93.

Known from a single shrivelled specimen, 3 inches long, which is possibly the young of the preceding species.

CXLIII.

Family BROTLIDÆ.

A. Scales imperfect, approximate posteriorly, spaced anteriorly.

AA. Scales well formed and imbricate. *Dermatopsis* (331).
Monothrix (332).

331. DERMATOPSIS Ogilby, P.L.S. N.S.W. xxi., 1896, p. 133 (*macrodon*).

331a. D. MACRODON. *Id.* Ogilby, *Ibid.*, p. 140.

A translucent, flesh-coloured fish, which lives in rock-pools on the coast. Length 3 inches.

332. MONOTHRIX Ogilby, P.L.S. N.S.W. xxii., 1897, p. 87 (*polylepis*).

332a. M. POLYLEPIS. *Id.* Ogilby, *Ibid.*, p. 88.

Known from a single specimen which is little more than two inches long.

SUCKER-FISHES. Order DISCOCEPHALI.

Elongate fishes with tough leathery skin, and long laminated suctorial discs upon the upper surface of their heads. These discs enable them to cling to sharks, large fishes, and boats, by which they are carried about without effort to themselves.

CXLIV.

Family ECHENEIDÆ.

A. Inner ventral rays united by membrane, free from the abdomen. *Echeneis* (333).

AA. Inner ventral rays attached to abdomen by membrane. *Remora* (334).

333. ECHENEIS Linne, Syst. Nat. 10th ed., 1758, p. 260 (*naucrates*).

333a. E. NAUCRATES. SLENDER SUCKER-FISH. *Id.* Linne, Syst. Nat. 10th ed., 1758, p. 261; *Id.* Day, Fish. India, 1876, p. 257, pl. 57, 1 (Pl. xxxiv.).

A world-wide species, which is common on this coast. Length 3 feet.

334. REMORA Gill, P. Acad. N. Sci. Philad. 1862, p. 239 (*remora*).

334a. R. REMORA. SHORT SUCKER-FISH. *Echeneis remora* Linne, Syst. Nat. 10th ed., 1758, p. 260; *Id.* Day, Fish. Gt. Brit. & Irel. i., 1880-84, p. 108, pl. 39, 2 (Pl. xxxiv.).

Occurs in all temperate and tropical seas, but is less common on this coast than the preceding species. Length 12 inches.

Order SCLEROPAREI.

A large and diversified group, known as the Mailed-cheek Fishes, in which a posterior projection from the suborbital bones extends backward across the cheek to the preoperculum. A scheme for the classification of the Order has been compiled by Regan (A.M.N.H. (8) xi., 1913, p. 169). The following provisional key is applicable to the species of New South Wales only.

- A. Head not markedly depressed, deeper than broad.
 - B. Head not completely encased in bony armature.
 - C. Body partly or entirely scaly. Fam. *Scorpaenidae* (cxlv.).
 - CC. Body naked.
 - D. Ventral fins present. Fam. *Aploactidae* (cxlvi.).
 - DD. No ventral fins. Fam. *Pataccidae* (cxlvii.).
 - BB. Head completely encased in bony armour.
 - E. Two anterior dorsal spines separate; pectoral reaching tail. Fam. *Cephalacanthidae* (cxlviii.).
 - EE. No detached dorsal spines; pectorals not reaching tail. Fam. *Triglidae* (cxlix.).
- AA. Head greatly depressed, much broader than deep.
 - F. Body naked, with a row of spinate bucklers on each side. Fam. *Hoplichthyidae* (cli.).
 - FF. Body scaly, without enlarged bucklers. Fam. *Platycephalidae* (cli.).

CXLV.

Family SCORPAENIDAE.

- A. Dorsal spines not greatly produced, largely united by membrane.
 - B. Less than 15 dorsal spines.
 - C. 12 dorsal spines.
 - D. Bony stay of cheek with several spines; lower part of operculum naked. *Scorpaena* (335).
 - DD. Bony stay of cheek nearly smooth; lower part of operculum scaly. *Helicolenus* (336).
 - CC. 13 dorsal spines.
 - E. Palatine teeth present. *Neosebastes* (337).
 - EE. Palatines toothless. *Scorpaenodes* (338).
 - BB. 15 or more dorsal spines.
 - F. A broad and deep hollow on the nape behind the eyes. *Glyptauchen* (339).
 - FF. No such hollow across the nape.
 - G. Back scaly anteriorly, 15 dorsal spines. *Eotesthes* (340).
 - GG. Back naked anteriorly, 16 dorsal spines. *Centropogon* (341).
- AA. Dorsal spines long and slender, united by membrane only at their bases. *Pterois* (342).

335. SCORPAENA Linne, Syst. Nat. 10th ed., 1758, p. 266 (*porcus*).

- A. 50-55 scales in a row below the lateral line. *cardinalis* (335a).
- AA. 45 or less scales in a row below the lateral line. *cruenta* (335b).

335a. S. CARDINALIS. RED ROCKCOD. *Id.* Richardson, A.M.N.H. ix., 1842, p. 212. *S. jacksoniensis* Steindachner, Sitzb. Akad. Wiss. Wien liii., 1866, p. 438, pl. 3, 2-2a (Pl. xxxviii.).

A rock fish, plentiful in the markets, and reaching 18 inches in length.

335b. S. CRUENTA. *Id.* Richardson, A.M.N.H., ix., 1842, p. 217. *S. militaris* Richardson, Ichth. Erebus & Terror, 1845, p. 22, pl. 14, 1-2.

A southern species, apparently rare in this State.

(*S. bynoensis* Richardson, has been incorrectly recorded from Port Jackson—*vide* McCulloch, Rec. W. Austr. Mus. i. 2, 1912, p. 96).

336. HELICOLENUS Goode & Bean, Oceania Ichth., 1895, p. 248 (*dactylopterus*).
- 336a. H. PERCOIDES. RED GURNET PERCH. *Sebastes percoides* Richardson, A.M.N.H. ix., 1842, p. 384, and Ichth. Erebus & Terror, 1845, p. 23, pl. 15, 1-2 (Pl. xxxviii.).
Common in deeper water, where it is captured by trawlers. Length 12 inches.
337. NEOSEBASTES Guichenot, Mem. Soc. Sci. Nat. Cherbourg xiii., 1868, p. 83 (*panda*).
- A. More than 40 pores on lateral line. *scorpaenoides* (337a).
AA. Less than 40 pores on lateral line. *thetidis* (337b)
- 337a. N. SCORPAENOIDES. SPOTTED GURNET PERCH. *Id.* Guichenot, Mem. Soc. Sci. Nat. Cherbourg xiii., 1868, p. 85; *Id.* McCoy, Prodr. Zool. Viet. dec. xx., 1890, pl. 193 (Pl. xxxviii.).
A southern species, not common in this State. Length about 12 inches.
- 337b. N. THETIDIS. ROUGH GURNET PERCH. *Sebastes thetidis* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 100, pl. 20 (Pl. xxxviii.).
Common in deeper water, where it is taken by the trawlers. Length 13 inches.
338. SCORPAENODES Bleeker, Nat. Tijd. Nederl. Ind. xiii., 1857, p. 371 (*polylepis*).
- 338a. S. SCABER. PIGMY GURNET PERCH. *Sebastes scaber* Ramsay & Ogilby, F.L.S. N.S.W. x., 1886, p. 577. *Sebastopsis scaber* McCulloch, Rec. Austr. Mus. ix. 3, 1913, p. 387, pl. 13, 2.
A small species, which is not common, about 3 inches long.
339. GLYPTAUCHEN Gunther, Brit. Mus. Cat. Fish. ii., 1860, p. 121 (*panduratus*).
- 339a. G. PANDURATUS. GOBLIN-FISH. *Apistus panduratus* Richardson, P. Zool. Soc. 1850, p. 58, pl. 1, 3-4 (Pl. xxxviii.).
A rare species of grotesque appearance, which lives among rocks. Length 6 inches.
340. NOTESTHES Ogilby, P. Roy. Soc. Qld. xviii., 1903, p. 17 (*robustus*).
- 340a. N. ROBUSTA. BULLROUT. *Centropogon robustus* Gunther, Brit. Mus. Cat. Fish. ii., 1860, p. 128. *Centropogon troscheli* Steindachner, Sitzb. Akad. Wiss. Wien liii., 1866, p. 440, pl. 4, 1 (Pl. xxxviii.).
Common in estuaries, and ascends rivers. It inflicts a painful wound with its preorbital spines. Length 12 inches.
341. CENTROFOGON Gunther, Brit. Mus. Cat. Fish. ii., 1860, p. 128 (*australis*).
- 341a. C. AUSTRALIS. FORTESQUE. *Cottus australis* Shaw, White's Voy. N.S. Wales, 1790, p. 266, fig. 1; *Neosebastes australis* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 103, pl. 21 (Pl. xxxviii.).
Very plentiful at certain seasons in estuaries, and well known because of its power of stinging with its preorbital spines. Length 6 inches.
342. PTEROIS Oken, Isis, 1817, p. 1182 (*volitans*).
- A. Pectoral rays simple, the membrane deeply cleft between the upper ones. *volitans* (342a).
AA. Some of the pectoral rays branched, the membrane not deeply cleft. *zebra* (342b).

- 342a. P. VOLITANS. RED FIRE-FISH. *Gasterosteus volitans* Linne, Syst. Nat. 10th ed., 1758, p. 296. *Pseudomonopterus volitans* Bleeker, Atlas Ichth. ix., 1878, p. 412, 3 (Pl. xxxviii.).

A widely distributed species in the tropics, which occasionally wanders southward along the north coast of this State. Length 12 inches.

- 342b. F. ZEBRA. FIRE-FISH. *Id.* Cuv. & Val., H.N. Poiss. iv., 1829, p. 367. *Pseudomonopterus zebra* Bleeker, Atlas Ichth. ix., 1878, pl. 411, 1.

Another occasional straggler from the tropics into our waters. Length 8 inches.

(*Gymnapistes marmoratus* Cuv. & Val., was incorrectly recorded from Port Jackson—vide McCulloch, Biol. Res. Endeavour, iii. 3, 1915, p. 161, pl. 36, 2. The record of *Synanceja horrida* Linne, from Port Jackson, is likewise incorrect—vide Ogilby, Cat. Fish. N.S. Wales, 1886, p. 22).

CXLVI.

Family APLOACTIDAE.

343. APLOACTIS Schlegel, Faun. Japon. Pisc., 1843, p. 51 (*aspera*).

- 343a. A. MILESII. VELVET-FISH. *Id.* Richardson, P. Zool. Soc. 1850, p. 60, pl. 1, 1-2 (Pl. xl.).

A curious little fish which is not often captured. Length about 7 inches.

CXLVII.

Family PATAECIDAE.

344. PATAECUS Richardson, A.M.N.H. xiv., 1844, p. 280 (*fronto*).

- 344a. P. FRONTO. RED-INDIAN FISH. FOREHEAD-FISH. *Id.* Richardson, *Ibid.*, and Ichth. Erebus & Terror, 1845, p. 20, pl. 13, 1-2 (Pl. xl.).

A remarkable species of grotesque form, and scarlet in colour. Length 9 inches.

(*P. maculatus* Gunther, has been wrongly recorded from Port Jackson—Ogilby, Cat. Fish. N.S. Wales, 1886, p. 39).

CXLVIII.

Family CEPHALACANTHIDAE.

345. DACTYLOPTENA Jordan & Richardson, P.U.S. Nat. Mus. xxxiii., 1908, p. 665 (*orientalis*).

- 345a. D. ORIENTALIS. FLYING GURNARD. *Dactylopterus orientalis* Cuv. & Val., H.N. Poiss. iv., 1829, p. 134, pl. 76. *Cephalacanthus orientalis* Jordan & Evermann, Bull. U.S. Fish. Comm. xxiii. i., 1905, p. 473, fig. 208 (Pl. xxxix.).

A tropical fish which sometimes extends southward to this coast. Its enlarged pectoral fins enable it to fly short distances through the air. Length 12 inches.

CXLIX.

Family TRIGLIDAE.

- A. A row of spinigerous bucklers along bases of both dorsal fins.

B. Scales larger, 50-60 on lateral line.

C. Lateral line not armed with spinigerous plates.

Lepidotrigla (346).

CC. Lateral line armed with spinigerous plates.

Paratrigla (347).

BB. Scales smaller, 100 or more on lateral line.

Chelidonichthys (348).

- AA. Large bucklers along base of spinous dorsal only.

Pterygotrigla (349).

346. LEPIDOTRIGLA Gunther, Brit. Mus. Cat. Fish. ii., 1860, p. 196 (*aspera*).
 A. Interorbital space only slightly concave; profile convex before the eyes. *mulhali* (346a).
 AA. Interorbital space deeply concave; profile not convex before the eyes.
 B. Pectoral fin shorter than the head. *modesta* (346b).
 BB. Pectoral fin longer than the head. *argus* (346c).
- 346a. L. MULHALLI. *Id.* Macleay, P.L.S. N.S.W. viii., 1884, p. 460; *Id.* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 105, pl. 22.
 Taken by trawlers in deeper water along the coast. Length 8 inches.
- 346b. L. MODESTA. *Id.* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 106, pl. 23 (Pl. xxxix.).
 Occurs with the preceding species. Length 7½ inches.
- 346c. L. ARGUS. *Id.* Ogilby, New Fish. Qld. Coast, 1910, p. 123.
 A Queensland species, which has been recorded from 27 fathoms off Cape Byron, New South Wales. Length 7 inches.

347. PARATRIGLA Ogilby, Ann. Qld. Mus. x., 1911, p. 56 (*pleuracanthica*).
 347a. P. PAPILIO. BUTTERFLY GURNARD. *Trigla papilio* Cuvier & Valenciennes, H.N. Poiss. iv., 1829, p. 80, pl. 73. *T. pleuracanthica* Richardson, Ichth. Erebus & Terror, 1845, p. 23, pl. 16, 1-4 (Pl. xxxix.).
 A small and ornate species, which is occasionally captured along the coast. It has been recorded by some authors under the name *papilio*, and by others as *pleuracanthica*, but I am unable to find any characters to distinguish these as separate species. Length about 7 inches.

348. CHELIDONICHTHYS Kaup, Arch. Naturg., 1873, p. 87 (*hirundo*).
 348a. C. KUMU. RED GURNARD. *Trigla kumu* Lesson & Garnot, Voy. Coquille, 1826, p. 214, pl. 19 (Pl. xxxix.).
 A widely distributed species which is common along the coast. Length 21 inches.

349. PTERYGOTRIGLA Waite, Mem. Austr. Mus. iv. 1, 1899, p. 108 (*polyommata*).
 A. Interorbital space markedly concave; body plain. *polyommata* (348a).
 AA. Interorbital space little concave; body with brown spots. *picta* (348b).
- 349a. P. POLYOMMATA. LATCHET. *Trigla polyommata* Richardson, P. Zool. Soc. 1839, p. 96, and Tr. Zool. Soc. iii., 1842, p. 87, pl. 5, 2 (Pl. xxxix.).
 Abundant in deeper waters where it is captured by trawlers. Length 20 inches.
- 349b. P. PICTA. PAINTED GURNARD. *Trigla picta* Gunther, Challenger Zool. 1, 1880, p. 24, pl. 13, a; *Id.* Waite, Rec. Cantb. Mus. 1. 3, 1911, p. 252, pl. 55 (Pl. xxxix.).
 A deep-water species, recently taken by trawlers east of Sydney in 150 fathoms. Length 14 inches.

CL. Family HOPLICHTHYIDÆ.

350. HOPLICHTHYS Cuvier & Valenciennes, H.N. Poiss. iv., 1829, pp. xix., 264 (*langsdoerffii*).
 350a. H. HASWELL. SPINY FLATHEAD. *Id.* McCulloch, Rec. Austr. Mus. vi. 5, 1907, p. 351, pl. 64 (Pl. xl.).
 Abundant in deeper waters, and a good table fish notwithstanding its forbidding appearance. Length 17 inches.

CLI.

Family PLATYCEPHALIDAE.

- A. Head largely scaly; no enlarged, thickened scales on the lateral line.
 B. Vomerine teeth forming a curved band across the bone; cranial ridges not serrated or spinose. *Platycephalus* (351).
 BB. Vomerine teeth in two separate groups, cranial ridges armed with spines and serratures. *Insidiator* (352).
 AA. Head almost naked; scales of lateral line enlarged and thickened. *Thysanophrys* (353).

351. PLATYCEPHALUS Bloch, *Ausl. Fische* ix., 1795, p. 96 (*spathula*).

- A. Jaws and palate without canines. subg. *Platycephalus*.
 B. Upper surface of cranium with some exposed bony ridges.
 C. Teeth not uniform, some on premaxillary symphysis, vomer, and palatines more or less enlarged.
 D. Interorbital space equal to or greater than transverse diameter of eye (except in young). Tail dusky with darker spots and white margins.
 E. Interorbital space nearly flat; head dusky with brown spots. *fuscus* (351a).
 EE. Interorbital space concave; head and body marbled. *marmoratus* (351b).
 DD. Interorbital space narrower than transverse diameter of eye.
 F. 13 dorsal rays; eye diameter equal to about half its distance from end of mandible; 3 or more black longitudinal stripes along tail from base to tip. *arenarius* (351c).
 FF. 14 dorsal rays; eye diameter greater than half its distance from end of mandible; black markings confined to posterior half of tail. *caeruleopunctatus* (351d).
 CC. Teeth small and uniform without larger ones on premaxillary symphysis, vomer, or palatines; lower preopercular spine very large. *longispinis* (351e).
 BB. No exposed bony ridges on upper surface of cranium. *laevigatus* (351f).
 AA. Jaws and palate with large canines. subg. *Neoplatycephalus*.
 G. About 11 gill-rakers on first arch, which are slender. *macrodon* (351g).

351a. P. FUSCUS. DUSKY FLATHEAD. *Id.* Cuvier & Valenciennes, H.N. Poiss. iv., 1829, p. 241; *Id.* Quoy & Gaimard, Zool. Astrolahe iii., 1835, p. 681, pl. 10, 1 (Pl. xl.).

A choice table-fish, of which large numbers are captured in inlets along the whole coast-line. Length 40 inches.

351b. P. MARMORATUS. MARBLED FLATHEAD. *Id.* Stead, New Fish. N.S. Wales, 1908, p. 9, pl. 3-5; *Id.* McCulloch, Biol. Res. Endeavour iv. 4, 1916, p. 197, pl. 57, 1.

Occurs on the northern portion of the coast. Length about 20 inches.

351c. P. ARENARIUS. SAND FLATHEAD. *Id.* Ramsay & Ogilby, P.L.S. N.S.W. x., 1886, p. 577; *Id.* McCulloch, Biol. Res. Endeavour iii. 3, 1915, p. 164, pl. 13. 1 (Pl. xl.).

A northern species, readily distinguished by the black longitudinal stripes on its tail. Length about 12 inches.

351d. P. CAERULEOPUNCTATUS *nom. nov.* SAND FLATHEAD. *Platycephalus bassensis* Stead, Ed. Fish. N.S. Wales, 1908, p. 112, pl. 78 (not *P. bassensis* Cuvier & Valenciennes).

The common Sand Flathead of New South Wales has been incorrectly recorded by various authors as *P. bassensis*, but it differs from that species in its somewhat stronger dentition, and in the greater development of its cranial ridges. Its colour and marking also is different to that of *P. bassensis*. As the species is without a name, I use *caeruleopunctatus* for it, this being a suitable name under which it has been labelled in the Australian Museum.

- 351e. *P. LONGISPINIS*. LONG-SPINED FLATHEAD. *Id.* Macleay, P.L.S. N.S.W. ix., 1884, p. 170.
 Captured by line fishermen on the coast. Length 12 inches.
- 351f. *P. LAEVIGATUS*. SMOOTH FLATHEAD. *Id.* Cuvier & Valenciennes, H.N. Poiss. iv., 1829, p. 248; *Id.* Quoy & Gaimard, Zool. Astrolabe iii., 1835, p. 684, pl. 10, 4.
 A southern species, forwarded to Sydney from the south coast of the State. Subgenus *NEOPLATYCEPHALUS* Castlenau, P. Zool. Soc. Viet. i., 1872, p. 87 (*grandis*).
- 351g. *P. NEOPLATYCEPHALUS MACRODON*. TIGER FLATHEAD. *Id.* Ogilby, P.L.S. N.S.W. x., 1885, p. 226.
 A deeper water species, captured in abundance by trawlers. Length 14 inches.
352. *INSIDIATOR* Jordan & Snyder, P.U.S. Nat. Mus. xxiii., 1900, p. 368 (*rudis*).
 A. Anterior third of lateral line with distinct upstanding spines. *jugosus* (352a).
 AA. Only a few anterior scales of lateral line with spines.
 B. Teeth of palate enlarged, cardiform. *diversidens* (352b).
 BB. Teeth villiform. *nematophthalmus* (352c).
- 352a. *I. JUGOSUS*. *Id.* McCulloch, Biol. Res. Endeavour ii. 3, 1914, p. 144, pl. 30, 2 (Pl. xl.).
 A northern species, which occasionally extends southward to Port Jackson. Length 8 inches.
- 352h. *I. DIVERSIDENS*. *Id.* McCulloch, Biol. Res. Endeavour, ii. 3, 1914, p. 148, pl. 31, 1.
 Three specimens were trawled in 48 fathoms off Port Stephens. Length 11 inches.
- 352c. *I. NEMATOPHTHALMUS*. *Platycephalus nematophthalmus* Gunther, Brit. Mus. Cat. Fish. ii., 1860, p. 184, and Fische Sudsee v., 1876, p. 166, pl. 107, c.
 A common species in Queensland. Two specimens are in the Australian Museum from Wallis Lake, New South Wales. Length 12 inches.
353. *THYSANOPHRYS* Ogilby, P.L.S. N.S.W. xxiii., 1898, p. 40 (*cirronasus*).
 353a. *T. CIRRONASUS*. ROCK FLATHEAD. *Platycephalus cirronasus* Richardson, Ichth. Erebus & Terror, 1848, p. 114, pl. 51, 7-10 (Pl. xl.).
 An ornate species, variegated with many tints to harmonise with the colours of the weed-covered rocks among which this species lives. Length 15 inches.

Order XENOPTERI.

Small fishes which cling to stones by means of an adhesive disc between and behind the ventral fins.

CLII. CLING-FISHES. Family GOBIESOCIDAE.

354. *DIPLOCREPIS* Gunther, Brit. Mus. Cat. Fish. iii., 1861, p. 506 (*punicus*).
 A. Bases of dorsal and anal fins longer than caudal peduncle; 7-10 dorsal and 6-8 anal rays. *costatus* (354a).
 AA. Bases of dorsal and anal fins shorter than caudal peduncle; 5 dorsal and 5 anal rays. *parvipinnis* (354b).

354a. D. COSTATUS. CLING-FISH. *Id.* Ogilby, P.L.S. N.S.W. x., 1885, p. 270; *Id.* Waite, Rec. Austr. Mus. v., 1904, p. 179, pl. 34, 1 (Pl. xxxvii.). Common in rock-pools, and of a pale flesh-colour. Length $2\frac{1}{2}$ inches.

354b. D. PARVIPPINNIS. LITTLE CLING-FISH. *Id.* Waite, Rec. Austr. Mus. vi. 3, 1906, p. 202, pl. 36, 3 (Pl. xxxvii.).

Attaches itself to weeds in rock-pools on the coast. Length 1 inch.

(*Crepidogaster tasmaniensis* Gunther, is recorded from Sydney by Kner, Novara Zool. i., 1867, p. 277, but as it has not been since obtained here, the record is regarded as incorrect).

Order PEDICULATI.

A. Gill-openings wide, vertical, in front of base of pectorals.

Suborder *Batrachoidea* (cliii.).

AA. Gill-openings smaller, above, behind, or below base of pectorals.

Suborder *Lophioidea* (cliv-clvi.).

Suborder BATRACHOIDEA.

CLIII.

Family BATRACHOIDIDAE.

355. PSEUDOBATRACHUS Castlenau, Res. Fish. Austr. (Vict. Offic. Rec. Philad. Exhib.), 1875, p. 24 (*striatus*).

355a. P. DUBIUS. FROG-FISH. *Lophius dubius* Shaw, White's Voy. N.S. Wales, 1790, p. 265, and figure. *P. dubius* McCulloch, Rec. W. Austr. Mus. i. 3, 1914, p. 224, fig. 1 (Pl. xli.).

Common in muddy places in estuaries. Length 12 inches.

The specimen recorded from Sydney by Kner, Novara Zool. i., 1865, p. 189, as *Batrachus trispinosus* is apparently referable to *P. dubius*.

Suborder LOPHIOIDEA.

A. Body not flattened, more or less compressed.

B. Spinous dorsal represented by three separate rays, the first being above the snout. Fam. *Antennariidae* (cliv.).

BB. Second and third rays of spinous dorsal united by membrane.

Fam. *Brachionichthyidae* (clv.).

AA. Body flattened forming a rounded disc.

Fam. *Ogcocephalidae* (clvi.).

CLIV.

ANGLER-FISHES.—Family ANTENNARIIDAE.

A. Skin naked.

Histrio (356).

AA. Skin beset with bristles or spines.

Antennarius (357).

356. HISTRIO Fischer, Zoog. Tab. Synop. Illustr. 3rd. ed., i., 1813, p. 70, 78 (*histrio*)—*vide* Jordan, Gen. Fish. i., 1917, p. 84. A name of uncertain status.

356a. H. HISTRIO. MARBLED ANGLER. *Lophius histrio* Linne, Syst. Nat. 10th. ed., 1758, p. 327. *Antennarius marmoratus* Gunther, Fische Sudsee v., 1876, p. 162, pl. 100, a (Pl. xli.).

A widely distributed species in temperate and tropical seas, which lives among seaweeds. Length 5 inches.

357. ANTENNARIUS Cuvier, Reg. Anim. 1st ed., ii., 1817, p. 310 (*chironectes*).

A. Body marked with blackish stripes.

striatus (357a).

AA. Body not striped.

B. Body and fins almost black.

commersonii (357b).

BB. Body reddish with darker markings.

nummifer (357c).

357a. A. STRIATUS. STRIPED ANGLER. *Lophius striatus* Shaw, Nat. Miscel. v., 1794, pl. 175. *A. striatus* Gunther, Fische Sudsee v., 1876, p. 162, pl. 99, b (Pl. xli.).

A. pinniceps Cuv. & Val. which occurs in New South Wales, appears to be merely a colour-variation of *A. striatus* in which the stripes and spots on the body and fins are not so well developed as in the typical form. Length 7 inches.

357b. A. COMMERSONI. BLACK ANGLER. *Chironectes commersonii* Cuvier, Mem. Mus. Hist. Nat. iii., 1817, p. 431. *A. commersonii* Bleeker, Atl. Ichth. v., 1865, p. 20, pl. 197, 3.

Occasionally captured on muddy ground where it lies in wait for the prey attracted by its flesh-coloured bait. Length 5 inches.

357c. A. NUMMIFER. SCARLET ANGLER. *Chironectes nummifer* Cuvier, Mem. Mus. Hist. Nat. iii., 1817, p. 430. *A. nummifer* Bleeker, Atlas Ichth. v., 1865, p. 18, pl. 198, 2.

A tropical species, occasionally extending southward to Port Jackson. Length 6 inches.

CLV. Family BRACHIONICHTHYIDAE.

358. BRACHIONICHTHYS Bleeker, Nat. Tijds. Ned. Ind. vii., 1854, p. 121 (*hirsutus*).

358a. B. HIRSUTUS. HAND-FISH. *Lophius hirsutus* Lacep., Ann. Mus. Hist. Nat. iv., 1804, pp. 202, 210, pl. 55, 3.

A southern species, which is only taken in deep water on the New South Wales coast. Length about 3 inches.

CLVI. Family OGCOEPHALIDAE.

359. HALIEUTAEA Cuvier & Valenciennes, H.N. Poiss. xii., 1837, p. 455 (*stellata*).

359a. H. BREVICAUDA. *Id.* Ogilby, New Fish. Qld. Coast, 1911, p. 138; *Id.* McCulloch, Biol. Res. Endeavour ii. 3, 1914, p. 163, pl. xxxiii. (Pl. xli.).

Specimens are captured by trawlers in deep water. Length 6 inches.

Order PLECTOGNATHI.

A. Spinous dorsal represented by one or more spines above the head.

B. Body covered with large bony plates. Fam. *Balistidae* (clvii.).

BB. Body covered with minute scales which may be rough or velvety. Fam. *Monacanthidae* (clviii.).

AA. No anterior spinous dorsal.

C. Body encased in an immovable carapace of hexagonal plates. Fam. *Ostraciidae* (clix.).

CC. Body covered with spines or prickles, or naked.

D. Caudal region normal, with a caudal peduncle.

E. Each jaw divided by a median suture; body naked or with small prickles. Fam. *Tetraodontidae* (clx.).

EE. Both jaws undivided by a median suture; body with strong spines. Fam. *Diodontidae* (clxi.).

DD. Body subcircular, compressed, truncated behind dorsal and anal fins. Fam. *Molidae* (clxii.).

CLVII.

Family BALISTIDAE.

360. BALISTES Linne, Syst. Nat. 10th. ed., 1758, p. 327 (*vetula*).

360a. B. JACKSONIANUS. *Id.* Quoy & Gaimard, Voy. Uranie, Zool., 1824, p. 209.

A tiny specimen, 1½ inches long, was obtained in Port Jackson in 1824, but no other representative of the species has since been collected.

(*Balistes vidua* Richardson, was recorded from Port Jackson by Ogilby, Fish. N.S. Wales, 1886, p. 61, but the data accompanying his specimen was quite unreliable. *Balistes maculatus* Linne, has likewise been incorrectly recorded from Sydney by Kner, Novara Zool. i., 1867, p. 401).

CLVIII.

Family MONACANTHIDAE.

A. Pubic bone ending in one or more spines.

B. Pelvic spine movable.

C. Body and dorsal spine without or with small cutaneous filaments.

Monacanthus (361).

CC. Body and dorsal spine with large cutaneous filaments.

Chactodermis (362).

Cantherines (363).

BB. Pelvic spine fixed.

AA. Pubic bone without a terminal spine.

D. Dorsal and anal fin long, with 42-46 rays.

Osbeckia (364).

DD. Dorsal and anal fins with less than 30 rays.

Brachaluteres (365).

361. MONACANTHUS Oken, Isis, 1817, p. 1181-3 (*chinensis*).

A. Ventral cutaneous expansion large, extending beyond the pelvic spine in adults. *chinensis* (361a).

AA. Ventral cutaneous expansion smaller, not extending beyond the pelvic spine.

B. More than 30 anal rays.

C. D. 29-33, A. 31-33.

sulcatus (361b).

CC. D. 35, A. 37.

filicauda (361c).

BB. Less than 30 anal rays.

D. Each scale with 3-5 spinules directed backward.

tomentosus (361d).

DD. Each scale with a single upstanding spinule.

nitens (361e).

361a. M. CHINENSIS. FAN-BELLIED LEATHER-JACKET. *Balistes chinensis*

Osbeck, Reise Ost. Indien China, 1765, p. 147. *M. chinensis* Bleeker,

Atlas Ichth. v., 1869, p. 125, pl. 222, 2 (Pl. xlii.).

Very common in Port Jackson, where it swims leisurely among weed-covered rocks in search of the small organisms upon which it feeds.

M. megalourus Richardson, has also been commonly recognised from New South Wales. This is said to differ from *chinensis* in having larger scales and a more slender dorsal spine, but it is probable that these are variable characters, and that the two species are synonymous. Length 10 inches.

361b. M. SULCATUS. *Id.* Hollard, Ann. Sci. Nat. (4) ii., 1854, p. 363, pl.

14, 3. *M. isogramma* Bleeker, Atlas Ichth. v., 1869, p. 128, pl. 222, 1.

This species was introduced into a New South Wales list by Ogilby, Cat. Fish. N.S.W., 1886, p. 63, upon unreliable authority.

361c. M. FILICAUDA. *Id.* Gunther, Challenger Zool. i., 1880, p. 50, pl. 23, d (Pl. xlii).

A northern species, rarely wandering southward to Sydney. Length 5 inches.

361d. M. TOMENTOSUS. *Balistes tomentosus* Linne, Syst. Nat. 10th. ed., 1758, p. 328. *Id.* Bleeker, Atlas Ichth. v., 1869, p. 127, pl. 220, 1.

Another tropical species of which the New South Wales records are very unreliable. Length 5 inches.

361e. *M. NITENS*. SILVER LEATHER-JACKET. *Id.* Holland, Ann. Sci. Nat. (4) ii., 1854, p. 364, pl. 14, 4.

A diminutive species, less than 2 inches long, which is rarely stranded on our ocean beaches.

362. *CHAETODERMIS* Swainson, Nat. Hist. Fish. Amph. Rept. ii., 1839, p. 327 (*spinossissimus*).

362a. *C. PENNICILLIGERUS*. PRICKLY LEATHER-JACKET. *Monacanthus penicilligerus* Cuvier, Reg. Anim. 2nd. ed., ii., 1829, p. 374. *C. penicilligerus* Bleeker, Atlas Ichth. v., 1869, p. 129, pl. 221, 3 (Pl. xlii.).

Though occurring in Queensland, the records of this species from New South Wales need verification.

363. *CANTHERINES* Swainson, Nat. Hist. Fish. Amph. Rept. ii., 1839, p. 327 (*nasutus*).

A. Depth at origins of dorsal and anal fins less than half the length to the hypural joint.

B. Pubic spine distinct; caudal peduncle shorter than the interdorsal space.

C. Depth at origin of dorsal and anal fins less than length of head. *ayraudi* (363a).

CC. Depth at origin of dorsal and anal fins greater than length of head.

D. Less than 30 anal rays; scales very coarse. *granulatus* (363b).

DD. More than 30 anal rays.

E. Skin beset with minute equidistant spines.

F. No brush of setae between dorsal and anal fins; D. 35-38,

A. 33-36. *hippocrepis* (363c).

FF. A brush of setae between dorsal and anal fins; D. 31-33,

A. 31-32. *guntheri* (363d).

EE. Skin beset with spines which are not equidistant but in groups of 2-5.

G. Each scale with 3-5 strong spines, united at their bases;

D. 36-39, A. 33-35. *trachylepis* (363e).

GG. Each scale with 2-3 slender spines which are juxtaposed but not united; D. 33-35, A. 31-36. *setosus* (363f).

BB. Pubic spine obsolete, length of caudal peduncle subequal to interdorsal space.

H. A blue stripe from chin, through eye, to middle of side, and many blue spots. *spilomelanurus* (363g).

HH. Greenish, with brown spots. *maculosus* (363h).

AA. Depth at origins of dorsal and anal fins half or more than half of length to hypural joint; pubic spine small or obsolete. *mosaicus* (363j).

Cantherines convexirostris, *castlenau*, *prasinus*, *freycineti*, and *rudis* are omitted from the above key, because certain of their structural details, necessary for the determination of their affinities, are unknown to me.

363a. *C. AYRAUDI*. CHINAMAN LEATHER-JACKET. *Balistes ayraudi* Quoy & Gaimard, Voy. Uranie, Zool., 1824, p. 216, pl. 47, 2. *Pseudomonacanthus ayraudi* Roughley, Fish. Austr., 1916, p. 183, pl. 66.

The young are plentiful in inlets while adults are more commonly captured in deeper water. Length 20 inches.

363b. *C. GRANULATUS*. ROUGH LEATHER-JACKET. *Balistes granulatus* Shaw, White's Voy. N.S. Wales, 1790, p. 295 & figure. *Monacanthus granulatus* Richardson, Ichth. Erebus & Terror, 1846, p. 63, pl. 40, 1-2 (Pl. xlii.).

Common in inlets along the coast. Length 9 inches.

- 363c. *C. HIPPOCREPIS*. VARIABLE LEATHER-JACKET. *Balistes hippocrepis* Quoy & Gaimard, Voy. Uranie, Zool., 1824, p. 212. *Aleuterius variabilis* Richardson, Ichth. Erebus & Terror, 1846, p. 67, pl. 52, 1-7 (Pl. xlii.).

A common species, altering considerably in both form and colouration with growth. Length 18 inches.

C. freycineti Quoy & Gaimard, was originally described from Mauritius, but Hollard, Ann. Sci. Nat. (4) ii., 1854, p. 336, pl. 12, 3, later reported it from New South Wales. The species has not since been recognised from Australia, however, and it seems probable that his New South Wales examples were incorrectly identified as *C. freycineti*. He noted their similarity to *C. variabilis*.

- 363d. *C. GUNTHERI*. TOOTH-BRUSH LEATHER-JACKET. *Monacanthus guntheri* Macleay, P.L.S. N.S.W. vi., 1881, p. 314. *M. browni* McCoy, Prodr. Zool. Viet. dec. xiii., 1886, pl. 124 (Pl. xlii.—not *Aleuterius brownii* Richardson).

A southern species, characterised by the possession of a remarkable brush of long setae on each side. Length 10 inches.

- 363e. *C. TRACHYLEPIS*. YELLOW-FINNED LEATHER-JACKET. *Monacanthus trachylepis* Gunther, Brit. Mus. Cat. Fish. viii., 1870, p. 248 (Pl. xlii.). Occurs in inlets, sometimes in schools. Length 16 inches.

The specimen recorded by Castlenau from Port Jackson as *Monacanthus rudis*, P.L.S. N.S.W. iii., 1879, p. 399, had 38 dorsal rays and other characters of *C. trachylepis*, and was probably referable to this species. As no other authors have recognised *C. rudis* from New South Wales, it seems probable that the species does not occur here.

- 363f. *C. SETOSUS*. VELVET LEATHER-JACKET. *Monacanthus setosus* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 91, pl. 16. *C. setosus* Waite & McCulloch, Tr. Roy. Soc. S. Austr. xxxix., 1915, p. 472, pl. 14.

Common in deep water along the coast, and frequently taken by trawlers. Length 11 inches.

- 363g. *C. SPILOMELANURUS*. *Balistes spilomelanurus* Quoy & Gaimard, Voy. Uranie, Zool., 1824, p. 217. *Aleuterius paragaudatus* Richardson, Ichth. Erebus & Terror, 1846, p. 66, pl. 39, 1-4 (Pl. xlii.).

Common around wharf-piles and on weedy flats in Port Jackson. Length 5 inches.

- 363h. *C. MACULOSUS*. *Aleuterius maculosus* Richardson, Ichth. Erebus & Terror, 1846, p. 67, pl. 39, 5-7.

Found commonly with the preceding species, of which it is probably merely a sexual form. Length 5 inches.

- 363i. *C. PRASINUS*. *Monacanthus prasinus* Castlenau, F. Zool. Soc. Viet. i., 1872, p. 205.

This species, described from a specimen under 3 inches long, has not been recognised by anybody but Castlenau.

- 363j. *C. MOSAICUS*. MOSAIC LEATHER-JACKET. *Monacanthus mosaicus* Ramsay & Ogilby, P.L.S. N.S.W. (2) i., 1886, p. 5. *C. mosaicus* McCulloch, Biol. Res. Endeavour iii. 3, 1915, p. 170, pl. 37, 1-2.

A deep and smooth skinned species, ornamented with mosaic-like colour-marking. Length 16 inches.

- 363k. *C. CASTLENAUI*. *Monacanthus peronii* Castlenau P.L.S. N.S.W. iii., 1879, p. 398 (not *M. peronii* Hollard). *M. castlenau* Macleay, P.L.S. N.S.W. vi., 1881, p. 316—substitute name.

The few characters given in Castlenau's paper are insufficient for the recognition of this species. It is doubtless synonymous with one of the preceding species.

(*C. platifrons* Hollard, has been incorrectly included in New South Wales lists on the authority of Gunther, Brit. Mus. Cat. Fish. viii., 1870, p. 229, who erroneously gave New South Wales as the locality of the holotype instead of King George's Sound.

C. convexirostris Gunther was included without comment in a mere list of New South Wales fishes by Castlenau, but it has not since been recognised from these waters).

364. *OSBECKIA* Jordan & Evermann, Rept. U.S. Fish. Comm. 1895 (1896), p. 424 (*scripta*).

364a. *O. MACULICAUDA*. *Monacanthus maculicauda* Ogilby, Cat. Fish. N.S. Wales, 1886, p. 64.

A very rare species. Length 7 inches.

365. *BRACHALUTERES* Bleeker, Nat. Tijds. Dierk. iii., 1866, p. 13 (*trossulus*).

365a. *B. TROSSULUS*. *PIGMY LEATHER-JACKET*. *Meuterius trossulus* Richardson, Ichth. Erebus & Terror, 1846, p. 68, pl. 40, 5-6, (Pl. xlii.).

Very common on weedy flats and around wharf-piles and jetties. Length 3½ inches.

CLIX.

Family OSTRACIDAE.

A. Carapace closed behind the anal fin.

B. Carapace with four or five angles.

BB. Carapace with three angles.

AA. Carapace not closed behind the anal fin.

Ostracion (366).
Lactophrys (367).
Anoplocapros (368).

366. *OSTRACION* Linne, Syst. Nat. 10th ed., 1758, p. 330 (*cubicus*).

A. Large spines on middle of back and supralateral ridges; supraorbital spines shorter than eye; caudal rays with several branches. *diaphanum* (366a).

AA. Median dorsal and supralateral spines small or wanting; supraorbital spines longer than eye; caudal rays mostly bifurcate. *cornutus* (366b).

- 366a. *O. DIAPHANUS*. *BOX-FISH*. *Ostracion diaphanus* Bloch & Schneider, Syst. Ichth., 1801, p. 501. *O. cornutus* Bleeker, Atlas Ichth. v., 1865, p. 33, pl. 204, 3 (not *O. cornutus* Linne).

A tropical species which is sometimes stranded on our ocean beaches. Length 9 inches.

- 366b. *O. CORNUTUS*. *COW-FISH*. *Id.* Linne, Syst. Nat. 10th. ed., 1758, p. 331. *O. arcus* Bleeker, Atlas. Ichth. v., 1865, p. 35, pl. 202, 3 (Pl. xliii.).

Another tropical species, occasionally wandering southward to Port Jackson. Length 15 inches.

367. *LACTOPHRYS* Swainson, Nat. Hist. Fish. Amph. Rept. ii., 1839, p. 324 (*trigonus*).

367a. *L. STELLIFER*. *TURRET-FISH*. *Ostracion stellifer* Bloch & Schneider, Syst. Ichth., 1801, p. 499, pl. 98. *Lactophrys tritropis* Snyder, Proc. U.S. Nat. Mus. xlii., 1912, p. 424, pl. 54, 1 (Pl. xliii.).

A widely distributed species, often stranded on our ocean beaches. Length 6 inches.

368. ANOPIOCAPROS Kaup, Arch. Naturg. xxi., 1855, p. 220 (*lenticularis*).
 368a. A. LENTICULARIS. BOX-FISH. *Ostracion lenticularis* Richardson, P. Zool. Soc. 1841, p. 21. *Aracana lenticularis* Waite, Mem. Austr. Mus. iv. 1, 1899, p. 95, pl. 17-18.
 Commonly captured in nets on the coast. Length 12 inches.

CLX.

Family TETRAODONTIDAE.

- A. Each nostril a bifid tentacle, without distinct openings. *Tetraodon* (369).
 AA. Each nostril with 2 distinct openings, usually in a low tube or papilla. *Spheroides* (370).
369. TETRAODON Linne, Syst. Nat. 10th. ed., 1758, p. 332 (*lineatus*).
 A. Dorsal and anal fins each with 10-12 rays.
 B. Back and sides with narrow longitudinal dark lines. *immaculatus* var. *manillensis* (369a).
 BB. Back and sides without such lines.
 C. Body with striking colour-marking, not uniform.
 D. Back with white spots; belly usually striped with black. *hispidus* (369b).
 DD. Back with brown spots; belly with or without black stripes or spots. *aerostaticus* (369c).
 CC. Colouration largely uniform.
 E. A blackish ring around the pectoral fin; skin nearly smooth. *arnilla* (369d).
 EE. Orange with scattered black spots; skin intensely bristly. *nigropunctatus* var. *citrinellus*, (369e).
- AA. Dorsal and anal fins each with 14 rays; body covered with rounded white spots. *firmamentum* (369f).

- 369a. T. IMMACULATUS, var. MANILLENSIS. *Tetraodon manillensis* Proce, Bull. Philom., 1822, p. 130. *T. virgatus* Richardson, Ichth. Erebus & Terror, 1846, p. 62, pl. 39, 8-9.

A variety of *T. immaculatus* which is uniformly coloured and without the dark longitudinal lines characteristic of var. *manillensis*. Length 10 inches.

- 369b. T. HISPIDUS. *Id.* Linne, Syst. Nat. 10th. ed., 1758, p. 333. *Crayracion laterna* Bleeker, Atlas Ichth. v., 1865, p. 71, pl. 205, 3.

A tropical species, which is not reliably recorded from New South Wales. Length 20 inches.

- 369c. T. AEROSTATICUS. BALLOON-FISH. *Id.* Jenyns, Zool. Beagle iii., 1842, p. 152. *Crayracion lineatus* Bleeker, Atlas Ichth. v., 1865, p. 70, pl. 212, 1. *T. amabilis* Castlenau, P.L.S. N.S.W. iii., 1879, p. 401.

A tropical species, of which young specimens occasionally stray southward to Port Jackson. *T. amabilis* Castlenau, was described from a specimen $4\frac{1}{2}$ inches long from Port Jackson in 1879, since which time the species has not been recognised. A local example of similar size is in the Australian Museum which, while agreeing well with Bleeker's figure quoted above, presents sufficient of the characters described by Castlenau as to leave little doubt that *amabilis* is synonymous with *aerostaticus*.

- 369d. T. ARMILLA. *Id.* Waite & McCulloch, Tr. Roy. Soc. S. Austr. xxxix., 1915, p. 475, pl. 15.

A southern species from deep water which is sometimes taken by trawlers. Length 8 inches.

- 369e. *T. NIGROPUNCTATUS*, var *CITRINELLUS*. *Id.* Gunther, Brit. Mus. Cat. Fish. viii., 1870, p. 293. *T. aurantius* Ogilby, Rec. Austr. Mus. i. 4, 1890, p. 80.

The type of *T. aurantius* is badly stuffed, but leaves little doubt that it is referable to the orange-coloured form of *T. nigropunctatus*. It is the only example of the species known from New South Wales, and was doubtless a straggler from the tropics. Length 11 inches.

- 369f. *T. FIRMAMENTUM*. STARRY TOADO. *Id.* Schlegel, Faun. Japonica Pisces, 1850, p. 280, pl. 126, 2 (Pl. xliii.).

A rare species, occurring in deeper water. Length 16 inches.

370. *SPHEROIDES* Dumeril, Zool. Analytique, 1806, p. 342 (*tuberculatus*).

A. Gill-opening without a cartilaginous spur projecting beyond the margin.

- B. Dorsal and anal fins pointed, their posterior rays less than half as long as the third.

C. Back entirely smooth; 11-12 dorsal rays. *inermis* (370a).
CC. Back with more or less numerous spinules.

D. Caudal peduncle wider than deep immediately behind dorsal fin; 10-12 dorsal rays. *sceleratus* (370b).

DD. Caudal peduncle deeper than wide immediately behind dorsal fin; 12 dorsal rays. *spadiceus* (370c).

BB. Dorsal and anal fins subquadrangular or rounded, the posterior rays more than half as long as the third.

E. Back without dark spots, but with cross-bands.

F. Nape with small spines.

oblongus (370d).

FF. Nape without spines.

pleurostictus (370e).

EE. Back with numerous dark spots; dark cross-bars usually present.

hamiltoni (370f).

AA. A cartilaginous spur projecting backward beyond margin of lower half of gill-opening; a dark stripe along each side, back with light spots.

pleurogramma (370g).

- 370a. *S. INERMIS*. SMOOTH TOADO. *Tetrodon inermis* Schlegel, Faun. Japonica Pisces, 1850, p. 278, pl. 122, 2.

A smooth silvery fish, which, like all others of the genus, is said to be poisonous if eaten. Length 18 inches.

- 370b. *S. SCELERATUS*. GIANT TOADO. *Tetrodon sceleratus* Gmelin, Syst. Nat. ii., 1789, p. 1444. *T. argenteus* Bleeker, Atlas Ichth. v., 1865, p. 64, pl. 209, 1 (Pl. xliii.).

A widely distributed species extending southward to Port Jackson. Length 30 inches.

- 370c. *S. SPADICEUS*. SILVER TOADO. *Tetrodon spadiceus* Richardson, Voy. Sulphur, Ichth., 1844, p. 123, pl. 58, 4-5.

Occurs in deep water and is often taken by trawlers. Length about 12 inches.

- 370d. *S. OBLONGUS*. *Tetrodon oblongus* Bloch, Ausl. Fische ii., 1786, p. 6; *Id.* Bleeker, Atlas Ichth. v., 1865, p. 62, pl. 208, 4.

Taken in deep water by trawlers. Length 15 inches.

- 370e. *S. PLEUROSTICTUS*. BANDED TOADO. *Tetrodon pleurostictus* Gunther, P. Zool. Soc. 1871, p. 674, pl. 69, a.

Common in the estuaries of northern rivers. Length 6 inches.

- 370f. *S. HAMILTONI*. COMMON TOADO. *Tetrodon hamiltoni* Richardson, Ichth. Erebus & Terror, 1846, p. 63, pl. 39, 10-11 (Pl. xliii.).

Very common in all shallow waters along the coast. Length 5½ inches.

370g. S. PLEUROGRAMMA. *Tetrodon pleurogramma* Regan, P. Zool. Soc. 1902, ii., 1903, p. 300, pl. 24, 2.

Not uncommon. Length 7 inches.

McCulloch and Waite, Tr. Roy. Soc. S. Aust. xl., 1916, p. 450, have united this species with *S. altipinnis* Ogilby, but this is apparently incorrect.

The specimen recorded as *Tetrodon erythrotaenia* from Sydney by Kner, Novara Zool. i., 1867, p. 408, was perhaps referable to *S. pleurogramma*.

S. richi Freminville, has been recorded from Sydney by Kner, Novara Zool. I, 1867, p. 407. Though common in Southern Australia, there is no evidence that it occurs in New South Wales waters.

CLXI.

Family DIODONTIDAE.

A. All the spines with two roots and movable.

Diodon (371).

AA. Most of the spines fixed, with 3 roots.

B. Anterior spines 2-rooted and movable; about 12 dorsal and anal rays.

Dicotylichthys (372).

BB. Anterior spines 3-rooted; 15-16 dorsal and anal rays. *Allomycterus* (373).

371. DIODON Linne, Syst. Nat. 10th. ed., 1758, p. 334 (*hystrix*).

371a. D. HOLOCANTHUS. *Id.* Linne, *Ibid.*, p. 335. *Paradiodon quadrimaculatus* Bleker, Atlas Ichth. v., 1865, p. 58, pl. 212, 2.

A tropical species of which the young sometimes wander southward into New South Wales. Length 12 inches.

D. hystrix Linne, was included in a mere list of Port Jackson fishes by Castlenau, P.L.S. N.S.W. iii., 1879, p. 357. As it has not been since recognised from these waters, further proof of its occurrence is necessary.

372. DICOTYLICHTHYS Kaup, Arch. Naturg. xxi., 1855, p. 230 (*punctulatus*).

372a. D. PUNCTULATUS. PORCUPINE-FISH. *Id.* Kaup, *Ibid.*; *Id.* Waite, Mem. Austr. Mus. iv. i., 1899, p. 98, pl. 19 (Pl. xliii.).

Very common in estuaries and inlets along the coast. Length 12 inches.

373. ALLOMYCTERUS McCulloch, Rec. Austr. Mus. xiii. 4, 1921, p. 141 (*jaculiferus*).

373a. A. JACULIFERUS. PORCUPINE-FISH. *Diodon jaculiferus* Cuvier, Mem. Mus. Hist. Nat. iv., 1818, p. 130, pl. 7. *A. jaculiferus* McCulloch, Rec. Austr. Mus. xiii. 4, 1921, p. 141, pl. 33, 2.

Commonly taken by trawlers in moderately deep water. Length 12 inches.

CLXII.

Family MOLIDAE.

374. MOLA Koelreuter, Novi Comm. Act. Petropol. viii., 1770, p. 337 (*aculeata*).

374a. M. MOLA. SUN-FISH. *Tetrodon mola* Linne, Syst. Nat. 10th. ed., 1758, p. 334. *Orthogoriscus mola* Schlegel, Faun. Japonica, Pisces, 1850, p. 288, pl. 127 (Pl. xliii.).

Apparently not rare off the coast, and occasionally stranded on ocean beaches. Length 10 feet.